EMA®

CE

COMPACT 500

USER'S MANUAL

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INTRODUCTION

Thank you for the trust you placed in us and in the equipment you just acquired. With it you will be able to bring the most **advanced technology** in **electro-aesthetics** and to introduce a tool that will become essential to secure good results.

This equipment provides you with an advanced option of cleansing and facial treatment. User-friendly, this equipment has been conceived to fully satisfy the requirements of the most demanding users. This machine has been subject to technical and application tests to guarantee its quality and results.

Our company also provides practical and advanced courses in facial treatment technique. This new service aims at giving the user the best knowledge possible in order to obtain high quality results. Information on our courses is available in our web pages (www.ema.es).

Before starting up the equipment, please **READ CAREFULLY this MANUAL**. Failing to do so could turn out to be dangerous and provoke damage to third parties.

We invite you to contact us or our distributor for any doubt or query. We would be delighted to assist you.

Yours sincerely,

The Management

SAFETY STANDARDS

This equipment complies with the **safety standards** in force at the time of manufacturing. However, the following safety recommendations should be observed:

1. Before handling the equipment, read carefully this manual.

2. The client's electrical safety is ensured by a double insulation from the mains. Do not however connect to a socket deprived of an earth connection. The machine must be connected to an earth plate provided with an **earth conductor**. Never connect to a system deprived of a differential switch.

3. Do **not** use on customers with a **pacemaker or any other active implant**, for the risk of interference with this device.

4. This appliance produces direct (galvanic) currents always flowing between the point of application and the "return" metallic electrode. The **heart** must **not** be found on the path of the galvanic current.

5. There must not be **metallic elements** (e.g.: osseous prosthesis) and/or cables in the area subject to the treatment.

6. Always place the accessories when the power button indicates **zero**.

7. This equipment must be used following the instructions of **qualified personnel** (for example, graduated beauticians).

GENERAL POINTS

COMPACT 500 is composed of high frequency, brushing, manual and automatic passive gymnastics current, galvanic and microgalvanic current. All these devices in one machine make of COMPACT 500 a solid, high quality, indispensable element for the beautician and in aesthetic medicine, since it allows to carry out all necessary facial treatments with only one apparatus. Presented in a small, practical case, COMPACT 500 includes all the accessories necessary for all the different treatments.

WARNING:
This equipment is not a medico-sanitary product, not aiming at diagnosing, controlling, monitoring or relieving any disease, injury or deficiency.
Always use cosmetic products complying with the law in force.
In case of doubts concerning the application on a specific client, consult a specialist.

TECHNICAL FEATURES

- This equipment combines the following functions in one unit: high frequency, manual and automatic *passive gymnastics*, galvanic and microgalvanic currents, brushing.
- Independent voltage control on each output.
- Rhythm indicator in passive exercise currents.
- Galvanic and microgalvanic current indicator.
- Independent use of the various modules.
- User-friendly.
- Provided with the necessary accessories for all functions.
- Presented in a transport case

- Supply voltage: 230 V (110V on request)
- Input: 125 W
- Weight: 3,8 Kg
- Dimensions: 390 x 280,5 x 110 mm
- Ground connection: the machine is provided with a ground connection through its mains cable. Connect to installations equipped with that connection.
- Safety: the machine remains insulated from the mains through a coil transformer.

This equipment uses radio frequency **currents** for treatments. The possible radio disturbances have been minimised. However, conditions specific to the premises (e.g.: earth plate which resistance is too high) can reduce even more these possible disturbances. **Additional measures** can be taken to this end. The following measures are recommended whenever possible:

a. The presence of an **independent earth conductor** used for electro-therapy equipments only.

b. The equipments must be located in a **Faraday** cage protected room.

Non-ionising radiation at the different levels and powers of the equipment **does not cause any effect harmful to health**, since its use does not require any further precaution from the person qualified to apply an appropriate treatment on the customer.

This symbol aims at dissuading the use of the apparatus by personnel non qualified or newly introduced to its use, warning of the possible adverse effects that an improper use could provoke on the client.

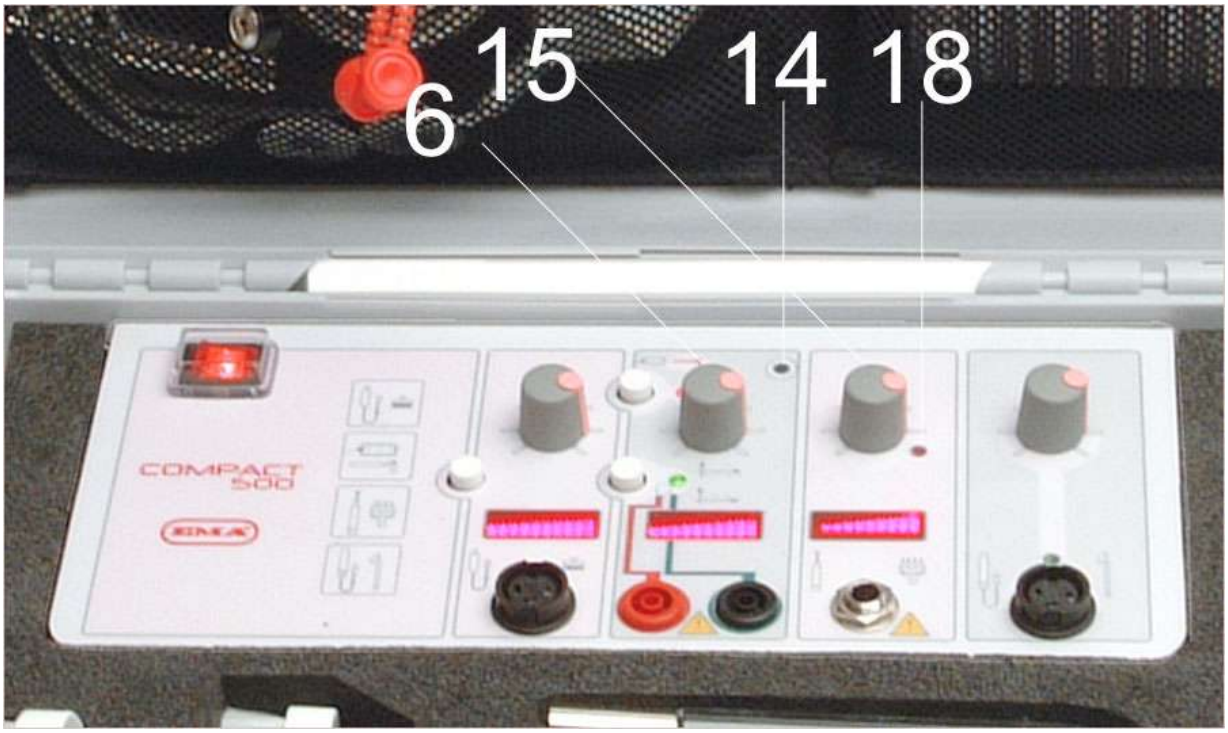
This equipment provides a special protection rate against electrical discharge, particularly in relation with the authorised leakage current and the reliability of the earth connection.

This symbol shows that high voltage generated in the high frequency control output cannot produce an electric shock.

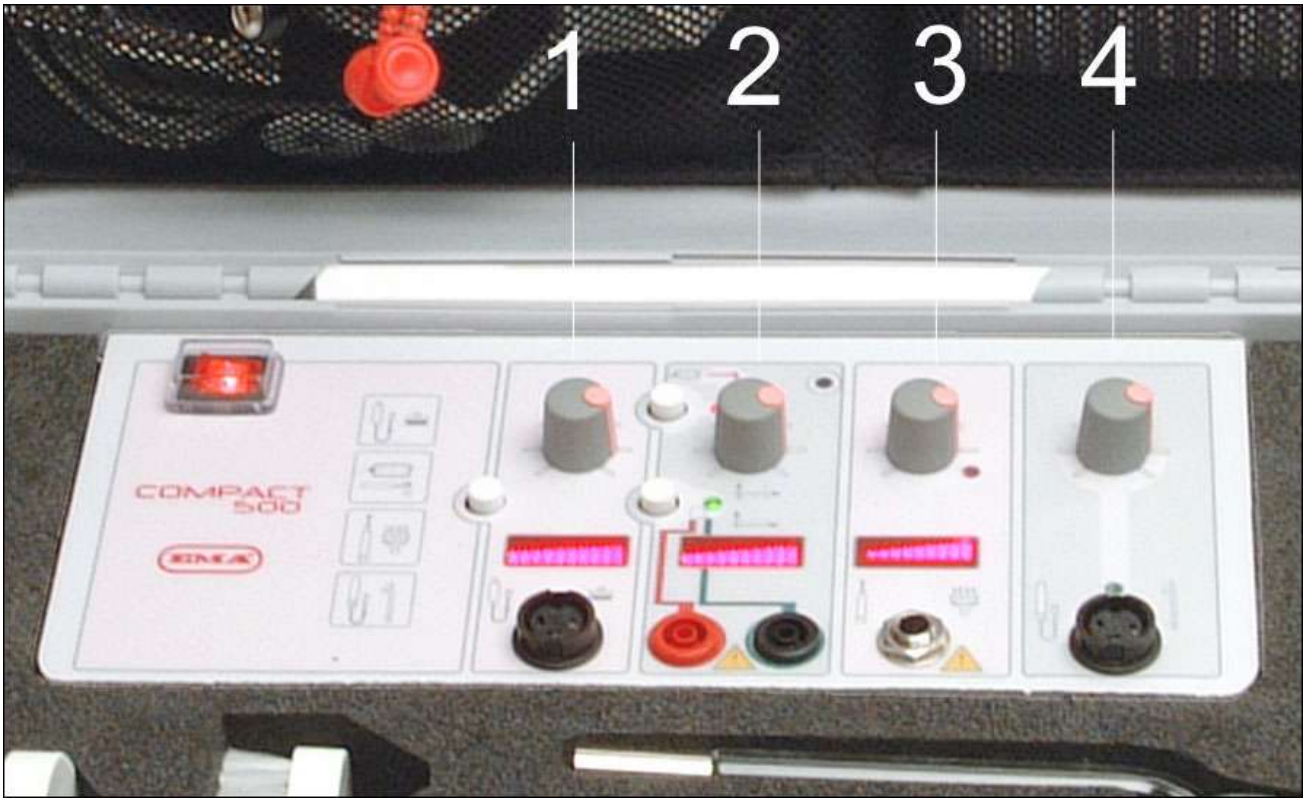
CE

PROTECTION SYSTEM AGAINST MAINS FAILURE

This machine includes a protection system against mains failure. In case of power outage, the machine will stop. Once the current has been restored, the protection circuit will be activated. The machine will then block the outlets, interrupting the treatment. **When this occurs, pilot light 14 will light up.** In passive gymnastics mode, the signal will be reinforced by **pilot 18** in **red**. In order to proceed with the treatment put all power controls to **zero** (especially those corresponding to the galvanic current –**6** – and to the passive gymnastics –**15**--). Once the protection circuit has been deactivated, the main (**14**) and the specific (**18**) pilot light will go out and the green light indicating that the machine can function (**18**) will light up again.



DESCRIPTION OF THE CONTROLS



COMPACT 500 includes four basic windows.

The FIRST one corresponds to the brushing module.

The SECOND one corresponds to the galvanic and microgalvanic current.

The THIRD one corresponds to facial passive gymnastics.

The FOURTH one corresponds to the high frequency module.

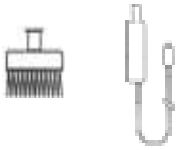
Description of the controls

Description of the controls

1.- Main on/off **switch**.

2. – **Power** control for the **brushing**.

3.- **Indicator** of the power applied to the **brushing**.



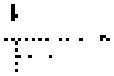
4.- **Output** for the brushing connection.

5.- **Switch** for the rotation direction of the brushing.

6.- **Power** control for **galvanic** currents.

7.-. **Indicator** of the power applied to the **galvanic** currents.

8.- **Positive outlet** (**red** cable) for galvanic currents

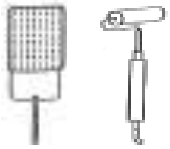


9. - **Negative outlet** (**black** cable) for galvanic currents.

10.- **Line-reversing switch** for galvanic or microgalvanic current.

11.- **Indicator** of the change of polarity of the galvanic current (positive or negative).

- Yellow pilot light = positive
- Pilot light off = negative



12.- **Choice** of galvanic currents:

a. Microgalvanic current

b. Galvanic current

13.- **Indicator** of the chosen galvanic current:

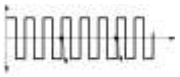
a. Microgalvanic current= green light

b. Galvanic current = light off

14.- **Indicator** of the irregularities in the operation of the machine (especially in the galvanic and/or passive gymnastics currents). The flickering red light shows that the power control is not on zero. To carry on with the treatment, the beautician must put the power button to reset.

15.- **Power** control for **passive exercise** currents (manual and automatic).

16.- **Indicator of the power applied to passive exercise** currents.



17.- **Outlet** to connect the cables of the passive exercise accessories.

18.- **Indicator** of the passive exercise current. The green light fluctuates according to the intensity applied on the power button (20).

19.- High frequency **power** control.

20.-High frequency **indicator**.

21.- **Outlet** for the high frequency connection.

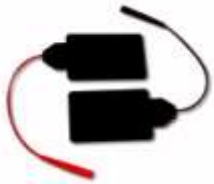
22.-. **Push button** for the release of high frequency current.

ACCESSORIES

REF.	DESCRIPTION	QTY
5111000	High frequency coil	1
5111049	Large blue mushroom glass electrode	1
5111014	Aluminium indirect electrode	1
5111061	Handle for brushing	1
5111067	Brush L 40 mm	1
5111066	Brush XL 55 mm	1
5111004	Small spontex sheath	2
5113001	Small black metallic facial plate	1
5111200	Small red metallic facial plate	1
5111043	Self-adhesive single use facial plate	24
5111076	Red banana cable	1
5112076	Black banana cable	1
5112071	Red-black jack cable for manual passive gymnastics	.1
5111016	Red-black jack cable for automatic passive gymnastics	1
5112650	Descaling mushroom aluminium electrode	2
5111042	Movements-microgalvanic handles	2
5111038	Microgalvanic roller electrode	2
5111039	Microgalvanic- stimulation flat electrode	1
5111040	Microgalvanic- stimulation ball electrode	1
5111041	Microgalvanic- stimulation pen electrode	1
5111028	Large elastic band 80 cm	2

Optional accessories:

- 5111008 Comb glass electrode

PHOTO	REF.	DESCRIPTION	Un.
	5111000	High frequency coil	1
	5111049	Large blue mushroom electrode	1
	511014	Aluminium indirect electrode	1
	5111061	Brushing handle	1
	5111067	Brush L 40 mm	1
	5111066	Brush XL 55 mm	1
	5111004	Small spontex sheath	2
	5113001 5111200	Small black metallic facial plate Small red metallic facial plate	1 1
	5111043	Self-adhesive single use facial plate	24
	5111076 5112076	Red banana cable Black banana cable	1 1
	5112071	Red-black jack cable for manual passive gymnastics	1

	5111016	Red-black jack cable for automatic passive gymnastics	1
	5111042	Movement-microgalvanic handles	2
	5111038	Microgalvanic roller electrode	2
	5111039	Microgalvanic-stimulation flat electrode	1
	5112650	Descaling mushroom aluminium electrode	2
	5111040	Microgalvanic-stimulation ball electrode	1
	5111041	Microgalvanic-stimulation pen electrode	1
	5111028	Large elastic band 80 cm	2

APPLICATIONS

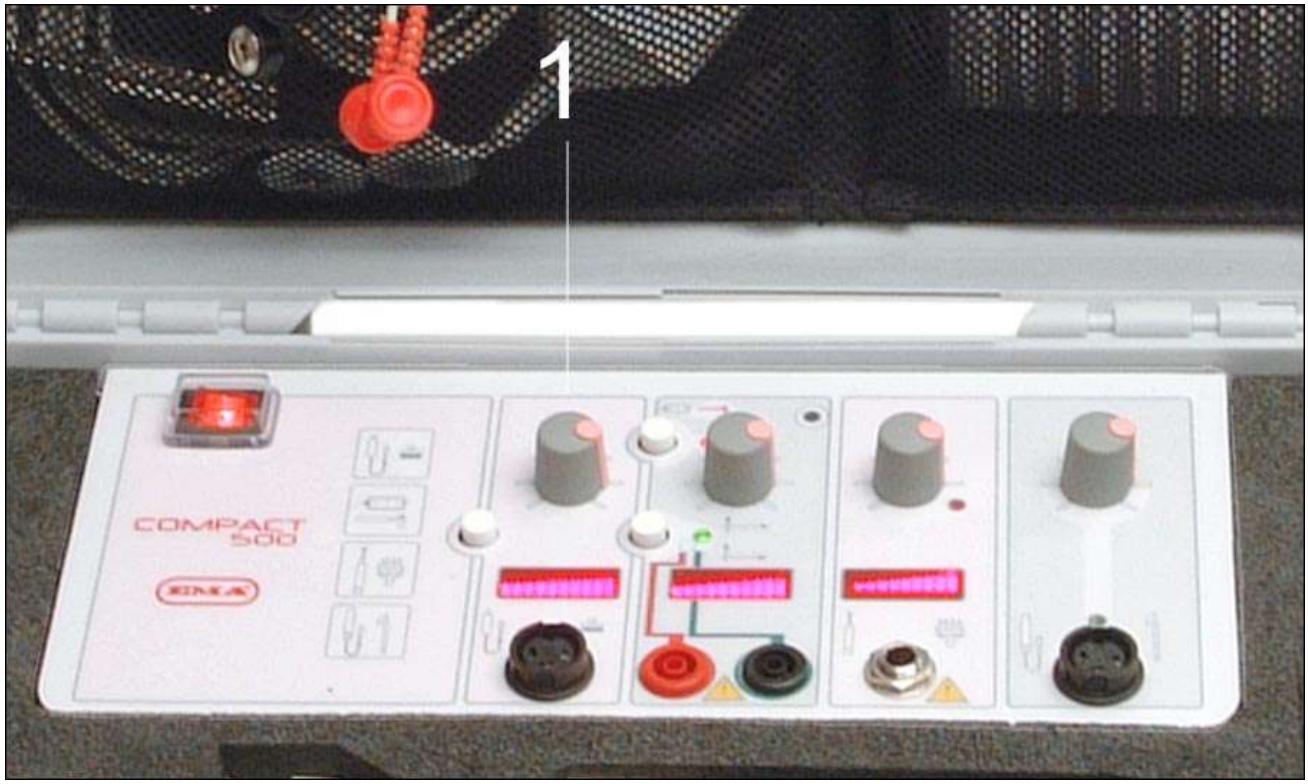
These are some of the numerous treatments that can be achieved with the equipment **COMPACT 500**:

- Disinfection of the skin with high frequency after removing impurities.
- Double chin and facial muscle firming through passive exercise currents.
- Treatments anti-wrinkles, eye lifting, nutrition, hydration, etc., by ionising the adequate product and using microgalvanic currents.
- Grease descaling in difficult skins using microgalvanic current and applying a descaling product and the mushroom-shaped metallic electrode.

DETAILED DESCRIPTION OF EACH MODULE

1. BRUSHING
2. GALVANIC AND MICROGALVANIC CURRENT
3. FACIAL PASSIVE GYMNASTICS CURRENT (AUTOMATIC AND MANUAL)
4. HIGH FREQUENCY

1. BRUSHING



The **brushing** unit corresponds to the first window of COMPACT 500.

BRUSHING MODULE

The brushing of the skin allows to clean, regenerate and soften the epidermis. This operation has to be done very gently, for too strong or violent an application can damage the layer of live cells of the epidermis and thus diminish the natural defences of the skin.

The skin is an organ protecting the organism against environmental aggressions. It usually resists the passing of any substance trying to introduce itself inside it. That resistance is higher when the skin becomes saturated as a consequence of the secretions produced by the glands joining the skin, by cosmetics, and also when the keratinous layer is thicker than normal due to an accumulation of cells. Hence the importance of a comprehensive cutaneous cleansing and hygiene before starting any treatment, facial or corporal. The brushing of the COMPACT 500 includes many accessories of various shapes and sizes, easily interchangeable. It has a motor allowing to adjust the speed and to reverse the rotation direction. The effects of the brushes on the skin is that of a mechanic brushing that eliminates the dead cells of the epidermis together with a slight reddening that facilitates the subsequent product penetration. It is mainly used to complete skin cleansing in depth and to improve its response to beauty care.

Peeling effect

The keratinous layer is the superficial layer of the skin and is made of dead cells rich in keratin and without a nucleus. This layer is responsible for the relative impermeability of the skin, which makes body water evaporation and substance or cosmetic product penetration difficult.

Reddening effect

Peripheral blood flow is stimulated through the brushing of the skin, which provokes a slight reddening of the skin. This effect is very beneficial since it improves the nutrition and oxygenation of cutaneous cells.

With its beneficial effects on the skin, the brushing is important in order to remove the excess of dead cells before starting any treatment. This way the extraction of impurities and of sebaceous accumulations of the pore (blackheads) becomes easier. Brushing must be carried out before applying ozone vapour, once the skin is free from make-up and impurities. It can be

done with dry or humid brushes, but the most frequent form of application is with a peeling cream. When the epidermis is free from dead cells, it is considered ready to receive the appropriate products. Its use before any electro-aesthetic treatment is very efficient since it decreases the resistance of the skin and thus activates the effects of the subsequent treatment.

This technique can also be applied to the whole body, whether as a preparation to a specific treatment or as a treatment itself. Brushing is an action which immediate result is a smooth, oxygenated skin. It is particularly indicated before the summer or sunbathing, since it facilitates a faster and more homogenous tanning thanks to an easier penetration of ultraviolet radiation. As for the face, body brushing must be done with care, especially in sensitive areas like the underarms, the bikini line, the popliteal fossa, the inner arms and thighs, etc.

Brushing can also be performed on creams, oil, biological or nutritive products, etc., for an easier application. Bristle brushes and the rotational movement provide a smooth and regular micromassage that, together with the reddening produced, enables the topical products applied to penetrate in depth. The machine includes various-sized brushes allowing to adapt to the requirements of the area to be treated.

START UP

1. Check that the equipment is connected.
2. Activate the on switch (1).
3. Insert the plug into the brushing outlet (4) on the front of the machine.
4. Hold the brush-holder handle, leaving it from it support, and place the chosen brush in it by pressing lightly.
5. Turn the potentiometer (2) to the right, to choose the rotation speed wanted.
6. Apply the brushing onto the treatment area. Remember that the size and intensity of the module must be adapted to the sensitivity and extension of the area to be treated. The rotation direction of the brush can be modified by pressing the switch (5).
7. At the end of the treatment, clean the brushes and place the brush-holder handle in its corresponding support.
8. Turn off the main switch (1).

IMPORTANT

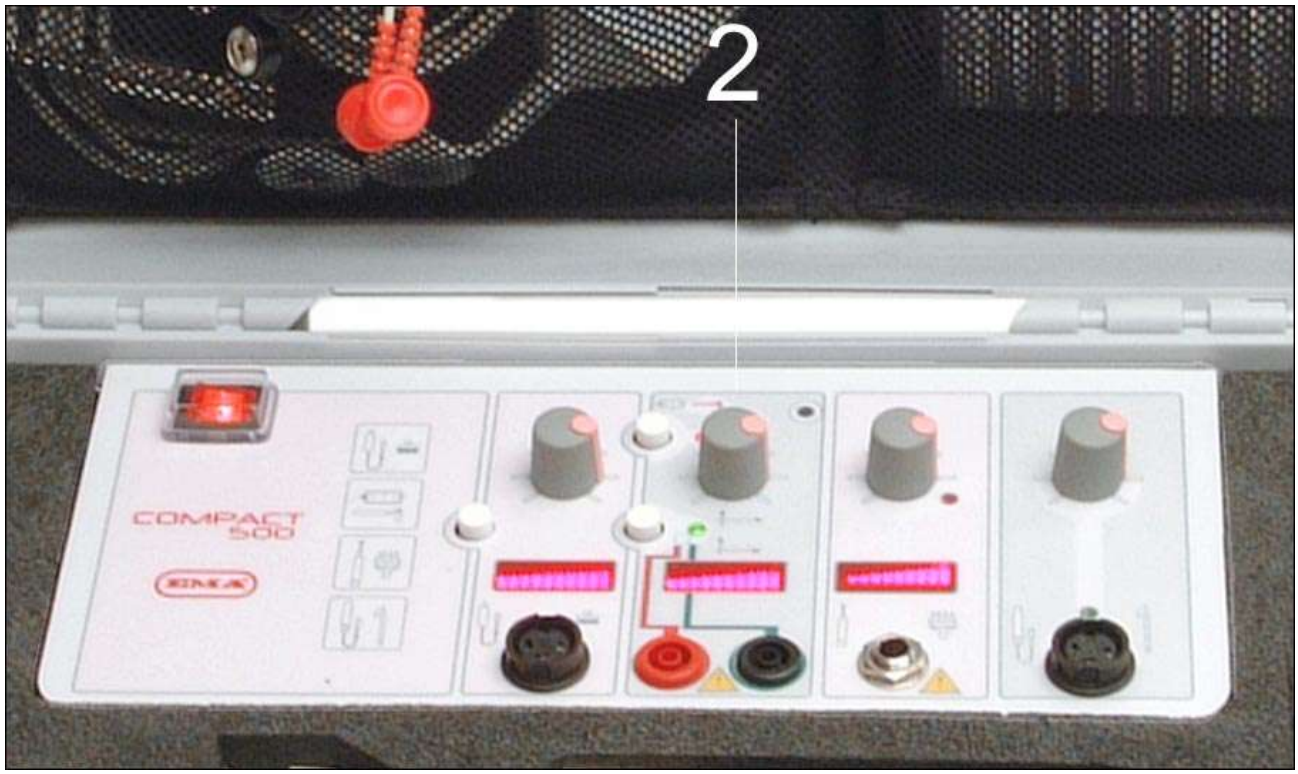
- The movement of the brushing on the skin must be mild and homogenous. A violent brushing could upset the skin, which would lose a part of its natural protection.

- Be extremely cautious on areas where the skin is the most sensitive: eye orbiculars, underarms, popliteal fossa, the inner arms and thighs, etc.

- Attach great importance to the cleansing and disinfection of the brushes after each use.

- Brushing is not recommended in the following cases: pustules, rosacea, telangiectasia, eczema, furunculosis, adenitis, varices and lesions.

2.GALVANIC AND MICROGALVANIC CURRENT



The **galvanic and microgalvanic current** unit corresponds to the second window of COMPACT 500.

GALVANIC CURRENT MODULE

GALVANIC CURRENT

Galvanic current *is a type of uninterrupted low-tension direct current*.

IONISATION TECHNIQUES

In all ionisation techniques we must always take into account the following **mainlines**:

1. The client who is going to receive the ionisation must take off all the **metallic objects** in contact with his body (watches, bracelets, rings, necklaces etc.). Presence of a dental appliance must also be taken into account, as well as metallic contraceptive devices; the beautician will have to assess those factors.

2. If the **skin** to treat is very **greasy**, the grease will have to be removed with a cotton soaked in a neutral soap. This will not be necessary in cases where a previous cleansing of the skin would have been carried out, as occcurs, for example, in descaling treatments. In these cases an appropriate cleansing milk must be used (oil in water emulsion with few fats and electrolytes).

3. When preparing the ionising product, if it comes in ampoule format, break the two ends and pour the content into an appropriate container, where it is diluted with distilled water.

In case of a gel or an electrolytic solution, take the quantity indicated by the manufacturer. With your fingertips, moisten the areas to be treated with the ionising solution, particularly for facial treatments.

4. If there are injuries, erosions, spots, etc. in the places of application, these parts must be covered with little pieces of paraffin paper before placing the electrodes.
5. Place some pieces of double gauze, previously cut according to the shape and size of the active electrodes and soaked in the ionising solution, on the

areas to treat. Once the gauze impregnated with the ionizsing solution are placed, put the active electrodes above, protected with spongy tissue covers.

6. These active plates covers will have previously been soaked in distilled water. Parasite ions are not introduced with distilled water, so the current intensity will only introduce cosmetological ions soaking the gauze. In addition, since the distilled water is hot, it will favour peripheral blood flow and avoid an unpleasant contact with the skin. On the other hand, the conduction of electricity is favoured precisely by this same water heating.

7. The sheaths covering the indifferent plates or attracting electrodes have to be soaked with a conducting solution. This solution may be tap water, due to the salts that it contains. However, sometimes because of the chemical treatment that the waters of the network undergo, they can contain ions that are not too convenient and that may produce alterations or allergies in the skin. For this reason it is preferable to use a conductive solution to soak the sponges of these plates or indifferent electrodes, for example, sodium chloride at 9 x 1,000, i.e. a physiological solution, buffered or not, Ringer's solution or, better still, a special solution composed of salts of weak acids and bases, duly buffered.

8. When placing the plates, active and indifferent electrodes with their corresponding soaked bands must be well fastened over the surface of the skin and in the areas indicated according to the treatment to carry out. For a correct fixing, elastic bands intended for that purpose must be used, perfect adaptation to the relief of the surface of the skin must be ensured, making sure that no metallic part is in contact with the skin and that no corner of the electrodes is folded and that there is no space between the skin and the plate.

9. Choose a colour of cable for each type of electrode, for example, as is established conventionally, black for the active and red for the indifferent. Before connecting them to the appliance, fix the banana extremity to the metallic or rubber plates.

   Very important: before connecting the cables to the machine, check that it supports the voltage of the current available (*125* or 220 volts) and that the power control is set to the minimum, and to which terminal the positive and negative polarities correspond.

10. Connect the cables to the appliance following the instructions of the corresponding technique and turn on the machine with the operating handle.

11. Slowly turn the control of each outlet to the right until reaching the intensity indicated by the technique.

12. Sometimes a burning or tickling sensation may occur with a moderate intensity, which can be the result of an inadequate moistening of the sheaths, a bad positioning of the plates on the skin or a direct contact between a metallic and the skin.

13. Intermittently, and during the treatment, check the work intensity of the appliance, outlet by outlet, since the resistance that the body to the passage of the current often reduces and the amperage could go up more than is required. This increase in the intensity can also take place after a few minutes of direct current, that is when the cosmetologic ions have begun to orientate themselves and move towards the opposite electrode,

$$I = \frac{V}{R}$$

which facilitates the passing of the current, reducing the resistance and increasing the intensity.
However, the appliances that are available nowadays like COMPACT 500 have anticipated this circumstance, in such a way that once the work intensity of each of the outlets has been fixed, a special mechanism prevents the intensity from varying, even though the resistance of the human body decreases.

14. This is due to a possible variation of the tension, and if we remember the formula:

$$\text{I (intensity)} = \frac{\text{T (tension)}}{\text{R (resistance)}}$$

15. We can perfectly check that when the resistance varies, if there is an automatic, compensable variation of the voltage, the intensity can be maintained constant. This, however, is within some limits, and there are some fluctuations of tens of milliamps that can be insignificant. Therefore, in these cases, with these type of appliances, constant watch can now be spread out more.

16. At the end of the session or when the technique indicates that a change of polarity is necessary before cutting the passing of the current or before working the inverter, the intensity of each outlet must be gradually reduced to zero.

17. Once the treatment is over, with the controls to zero, the appliance can be disconnected and the electrodes removed.

18. Once the electrodes have been removed, a slight reddening of the skin may appear in the treated area. This is completely normal and shows that there has been a real ionisation that will disappear after a short time.

19. At the end of the session, wash carefully covers and electrodes with soap and water.

WORK INTENSITY AND DURATION OF THE TREATMENT

The manufacturer of the ionising product must indicate the work intensity and the duration of the treatment. However, here are a few indications.

1. In the first place, the intensity to apply must be calculated according to the surface of the electrodes that we are going to use, and always starting from the basis that *the **minimum** intensity will correspond to 0.02 milliamps per cm^2 of active electrode and the **maximum** 0.05 milliamps per cm^2 of active electrode* (so that if an electrode has a surface of 100cm^2, the minimum work intensity with this electrode will be 0.02 by 100: 2 milliamps, and the maximum 0.05 by 100, 5 milliamps).

   These minima and maxima depend on the resistance to the passing of the current, specific to every individual.

2. Another consideration is the following. An ionisation treatment using a current of 1 milliamp for 10 minutes lets penetrate half the number of ions introduced in a 10-minute treatment of 2 milliamps with the same product. Although this seems to indicate that the greater the intensity applied, the easier it will be to ionise the product, we must take into account that there is a limit in the minimum and maximum previously mentioned.

3. When using small electrodes, for example during facial treatments, the current is ten times lower, and minimum intensities will be used in case of descaling and facelift. With this type of electrodes (roller, pencil, ball, etc.) work intensities vary between1 and 2,5 mA.

4. The treatment does not lose its efficiency if we work at a lower intensity for a longer time, that is to say, if we reduce the flow of ions and leave it applied for longer. A 15-minute treatment with an intensity of 2 milliamps produces the same effect than a 30-minute treatment of 1 milliamp. Logically, it is necessary to take into account that these considerations are different according to each type of ion, since the ionic velocity, characteristic of each ion, plays a very important role.

Safety in the galvanic beauty treatment

Galvanic beauty treatment is very easy to perform, but in the hands of an untrained or incompetent operator, it can cause intolerable and permanent damage to the client. It is very important to take all the precautions for an effective, comfortable and *safe* treatment.

Limits in the current intensity

For a better safety, the current must be limited to a *maximum of*:

0,3 milliamperes per square centimetre of contact electrode (2 milliamperes per square inch).

The *total* of the current for:

Facial treatment must not exceed 3 milliamperes. *Body* treatment must not exceed 8 milliamperes.

With the *proper* flow of current the client should feel a tickling sensation under the electrodes. COMPACT 500 has an automatic control circuit for the current, limiting it to these values.

Always start a treatment with a current *inferior* to the maximum tolerated, until the resistance of the skin has stabilized by itself. The current is then progressively increased to the *working level*.

Exceding an excessively high current can result in a *burn*. *Alkaline burns* under the electrodes are very ugly, unpleasant and take a long time to heal. They can leave a mark for life.

Worse still are the *burns* of the *bones*. An excess of current going through the bone can carbonise it. A bone burn is very painful and slower to heal.

At the end of the beauty treatment

As we move towards the end of the treatment, the current must be *gradually reduced* to allow the completion of the chemical effects and prevent any chemical waste from remaining on the skin. Alternatively, reverse the current for the last moments of the treatment to *neutralise* the chemical waste.

Finally, if the client notices that the treatment produces an unbearable irritation in the skin, *stop* the treatment and reverse the current to neutralise the cause of the irritation.

FACIAL DESCALING TREATMENT

We will begin giving specific instructions for a **descaling** facial treatment.

Descaling is advised for excessively greasy skins. Essentially, descaling is an ionisation allowing to get rid of the excess of embedded fat. This deep cleansing of the skin comes from the **saponification** of **fatty acids**, important components of the retained sebum, by means of sodium, magnesium and potassium ions as well as anions, above all carbonic, containing the ionising solution. It also enables to reduce the diameter of excessively dilated pores.

How to proceed

1. Put the ionising solution in an appropriate container.

2. Cover the metallic bar or indifferent electrode with cotton soaked in a conductive solution, drain it and give it to the client who will hold it firmly in his/her hand or place the indifferent plate on the arm with a conducting solution or tap water.

3. Moisten the client's face with cotton soaked in the ionising solution, especially in the areas with a greater quantity of grease and open pores.

4. Dampen the active mobile electrode with the descaling solution. If using the ball electrode, cover it with cotton.

5. Once the appliance has been checked in the way described previously, connect the cable of the indifferent electrode, that is to say the one the client will be holding in his/her hand, to the positive pole of the apparatus and the cable of the active electrode to the negative pole.

6. Place the active electrode on the client's forehead, connect the machine and turn the potentiometer control to the right until the milliammeter indicates an intensity included between 1 and 2 milliamps, without any trouble for the client. If the alter tolerates it, it can be raised up to 3 milliamps.

7. Once the circuit is established, move the active electrode consistently and making circles around its axis, following the client's face and the direction of

the facial muscles, without separating it from the skin. Do not go near the eyes or the temples. Concentrate on the areas with more dilated pores and an abundance of grease.

8. The session must not last more than three or four minutes.

9. Finally, slowly slide the electrode towards the neck, below the ear, while slowly reducing the intensity of current down to 0 miliamps with the other hand.

10. Afterwards, disconnect COMPACT 500 and remove the electrodes.

11. Later, apply the appropriate beauty treatment to reestablish the pH.

Important notes

Do not perform descaling more than once a month. If the cutis is extremely greasy, it can be carried out a maximum of twice a month. More sessions could cause the so-called *reactional fat secretion*: the skin feeling excessively cleaned off its grease, the sebaceous glands will produce a hypersecretion of sebum causing the oppposite effect to that desired. Always end descaling with a pH balancer to avoid a reactional fat secretion.

BEAUTY TREATMENT OF BLACKHEADS AND IMPURITIES OF THE SKIN

This trouble of the sebaceous follicles is characterised by a regional eruption in adolescence, possibly caused by a state of sensitivity of the pilosebaceous system due to many possible causes:

- Superficial hyperkeratosis closing the pilosebaceous orifice.
- Hyperplasia of the stratum corneum surrounding the pilosebaceous follicle.
- Inflammatory process originated by the intrinsic composition of the blackhead.
- Excessive production of sebum.
- Presence of impurities.
- Presence of staphylococcus albus.
- Bacterial lipases of the previous microorganisms that develop irritating fatty acids.
- Endocrine factors.

Sick follicles are characterised by:

- Folicular canals dilated and full of keratinolipids and microorganisms.
- Presence of impurities in the skin.
- Presence of hair making the cleansing of the follicle difficult.

In this type of follicles two different forms of blackheads can appear:

- Those that can be expelled to the exterior by mechanical means, due to the fact that the mouth of the follicle is dilated (pimples).
- Those that are contained inside the follic and can not be expelled to the exterior (sebaceous microcysts).

Although the doctor must be the one to diagnose and treat the imperfections of the skin, especially with respect to the hormonal and antibiotic medication, it is well known that beauticians collaborate very effectively in maintaining the skin clean.

There is a common point between the different cabin treatments: the use of keratolytic substances and/or regulating the sebaceous gland. Among the substances we can mention sulphur, used for centuries. Its drawback is its insolubility in cosmetic solvents and its action is therefore limited to its superficial keratolytic effect.

However, there is a method allowing the passage of the sulphur through the folicular canal up to the altered sebaceous gland.

We will proceed as follows:

1. Clean the skin with a lotion not containing any mineral oil.

2. Apply vapour with antiseptic aromatic substances (rosemary, sage, etc.).

3. Apply ionisation as described for descaling but using an electrolyte solution with a predominance of sodium thiosulphate, since the thiosulphate anion will penetrate through the negative pole, with the client holding the positive pole in his/her hand. The intensity is comprised between 1 and 2 milliamps.

4. Take care not to pass the electrode over the inflamed areas (papules, pustules). The client will notice the characteristic smell of sulphur liberated by ionisation. The session must last from 3 to 5 minutes and should take place twice a month at the most. When treating impurities, ionisation replaces descaling.

5. Afterwards, extraction of blackheads is carried out as is normal. If you want, and to complete the effect of the sulphur, a face mask can be applied.

6. Finally, disinfect the area and apply a lotion or azulene cream.

FACELIFT

Another treatment where facial ionisation can be used is the facelift, cosmetic or electronic. For this type of treatment ionising products will be used for a cosmetic facelift or electrical current for an electronic one.

The electrodes vary also: needle, ball, roller, etc., each one with a specific application.

FACIAL DEHYDRATION TREATMENT

Dehydration process

Someone once said that our ageing is due to the inability of living tissues to retain water.

Indeed, with the passing of time, the water content in our tissues and organs decreases, causing a lack of turgescence and a minor capacity to eliminate toxins and catabolites: this is **ageing**.

Logically, the skin is not excluded from this process and also suffers the consequences of time passing, this circumstance being aggravated by its condition as barrier of separation between our body and the hostile and dehydrating external environment.

However, our skin has certain mechanisms that tend to limit the loss of internal water by evaporation and transpiration, without which the *loss* of water through the skin would be massive and fatal. These mechanisms are various:

- *Cutaneous lipids*. Due to their hydrophobia, they exercise a physical-chemical barrier to the flow of water through the epicutaneous emulsion in both directions.
- *Keratinous layer*. The special disposition of the horn cells and the characteristics of its membranes, as well as the maintenance of the keratin at the most of its isoelectric point, help to maintain a water content of between 12 and 15% in this external epidermic area.

- *Natural hydration factor*. It is formed by a little-known mixture of various substances produced by the cutaneous biological reactions, whose mission of retaining water is due to its hydrophylia These substances include amino acids, sugars, organic acids, mineral ions, urea, etc.

- *Fibroblasts*. These cells situated in the dermis make the collagen and the mucopolysaccharides composed by fibres and the fundamental substance of the subcutaneous tissue. For their marked hydrophilia they are an important water reserve with 65 to 70% water.

Natural hydration process

We have seen how the dehydration process of the skin takes place. Now let's see what the natural hydration process of the skin is:

- *Internal factor*. Water continually reaches the epidermis from the deepest layers of the skin.

- *External factor*. A percentage of the water lost by sweating is reabsorbed, the epidermic water with keratinous structures and components of the natural hydration factor.

- Water absorbed by *capillarity* in the keratinous layer microstructure, called imbibition water, that performs a lubricating and plastic role with respect to the keratin, and confers a uniform appearance to the epidermis, smooth and elastic.

- United water remains relatively fixed in the epidermic structures, but the same does not happen with the absorbed water, easily evaporated by action of various external factors.

Factors contributing to dehydration

1. *Climatic*. They are very important, especially the summer dry atmosphere, high mountain, exposure to the sun and wind. The dry environment of houses and offices heated in winter or air-conditioned is also an important factor of cutaneous dehydration.

2. *Chemical*. The skin dries easily with the contact of organic solvents, alkaline soaps and detergents normally used.

a. The use of inappropriate cosmetics to clean the skin can lead to the elimination of the hydrolipid film, the modification of the permeability of the stratum corneum or the disappearance of natural hydration factors. In this case, elimination of water is accelerated and the epidermis dries.

3. *Age.* With age sebaceous productions decrease, the cutaneous biological reactions slow down, lowering the rate of natural hydrating factors, and the fibroblasts produce less collagen and mucopolysaccharides. In short, the keratinous layer loses its water retention capacity with age, and on the other hand, the water coming from inside becomes less and less because of the degeneration of the water reservoir of the subcutaneous tissue.

4. *Diet*. Due to pathological factors or reductions.

Treatment of dehydrated skins

This type of skin is mainly characterized by a rough aspect, for cracking or scaling easily, for being fragile and/ or irritable, not being very elastic and presenting a sensation of tautness.

As for beauty treatment, it is necessary to differentiate the **preventive** and **repairing dermohydrating** ones.

Preventive treatment.

Apart from avoiding, where possible, very dry environments and excessive exposure to the sun, as well as contact with detergents and cosmetics, the beautician will recommend the use of cosmetic products preventing the lack of water in the skin.

These hydrating cosmetic products can act in different ways.

- ***Direct action***. On the superficial layers of the skin by means of hydrating preparations containing hydrophilic substances capable of strenghtening the natural hydration factors: amino acids such as glycine, hydroxyproline, arginine, etc; sugars, sodium salt from carboxylic pyrolidin acid, sodium or glyceryl lactates, urea, etc.

  Hygroscopic or moistening substances are often added, whose role consists in retaining the water in the stratum corneum the longest possible. Many have been tested, but the glycerine has been discarded; the most effective are Sorbital and mucopolysaccharides,

among them hyaluronic acid which, thanks to its ability to retain water and its affinity with cations helps to maintain the water content in the *active principles appropriate for cutaneous dehydration treatment.*

Using zinc and titanium oxyde is also advocated for their covering capacity and protection against solar radiation.
The excipient of these hydrating creams with direct action is generally an emulsion of external aqueous phase, and is applied during the day.

- ***Indirect action***. Works on the epidermis, protecting it from evaporation by means of covering or occlusive preparations. They are unctuous like vaseline type onctions or emulsions of external oil phase, with an abundance of non-absorbable mineral oils such as paraffin and lipophilic substances that halt dehydration. Due to its greasiness, it is advised to apply this type of preparation at night, although it is not inconvenient to use it during the day on some extremely dry skins.

  Face masks are also mentioned in this chapter, since they form an occlusion over the skin in a way that, by impeding transpiration, the water vapour reverts to the keratinous layer, hydrating it at the expense of the water lost by evaporation. However, this type of cosmetic must not be used for more than 15 days, except if there is a risk of excessive maceration of the horn cells with a loss of the protective capacity of the keratine. Incorporating hydrating substances in these masks is recommended: for example, amino acids, sugars, urea, etc. In a same formula both effects can be obtained, which is why products perfectly adapted to the needs of each type of skin can be obtained.

  Although principles with a direct action (such as water and moisturizers) are desirable in every case, it is different with oils and other fat substances of indirect action, more indicated for the treatment of dry skins than of greasy complexions.

Dermohydrating refreshing treatment

When an important dehydration takes place because of the unfavourable factors already mentioned, we have to act in a more vigorous and remedial way. The occlusive and hydrating techniques of the epidermic surface are not enough, we have to act at the level of the water reservoir, that is to say, of subcutaneous tissue.

We have seen how the skin in senescence is poor in collagen, amino acids and mucopolysaccharides, and particularly in hyaluronic acid. Supplying these elements in depth is made difficult by their molecular complexity; it is then when the ionisation techniques can help us to achieve their penetration.

Indeed, using the technique of marked molecules, it has been shown that, after the ionisation, these elements are found in the depths of the skin, many of them even forming part of complex molecules (collagen fibres and mucopolysaccharides) originated from much simpler elements (hyaluramine amino acids, etc.). Due to their polyanionic nature, many of these molecules, get abundantly hydrated, causing a greater nutrition of the dermis and favouring the elasticity and the young and hydrated aspect of the skin.

Conductive excipients

Once the ionising active principles have been chosen, they must be incorporated to an excipient conducting the electrical current.

- Aqueous solutions.
- Polyethylene glycol creams.
- Carboxymethyl cellulose gels.
- Carbomer gels.
- O/A Emulsions with under 10 % fat.
- Gelicrem (O/A emulsion with a gelified aqueous phase).

COMPACT 500: Appropriate equipment

The unit of galvanic and microgalvanic current of the COMPACT 500 is the perfect tool for the beauty professional wanting to carry out a deep facial rehydration treatment:

Technique:

1. Clean the face with a makeup remover low in fats.

2. Apply water vapour with ozone, intermittently for 10 minutes.

3. Perform a soft peeling. If there are any blackheads, extract them a few days preceding the treatment, to avoid irritating the skin.

4. Moisten the skin with an isotonic conducting solution to increase conductivity.

5. Extend the deep hydrating repair cream chosen over the area to treat.

6. Slowly slide the roller electrode, connected to the negative pole, over the treatment area for 15 to 20 minutes with a work intensity included between 1 and 2 miliamps. If it is necessary to put product over the skin again, stop the supply of the current momentarily.

7. Remove the surplus cosmetological product.

8. Spray a decongestive lotion made from marigold or chamomile, letting it dry over the skin. Massage with essential oils since the massage will facilitate the pentration of ions. The muscular stimulation can also be reached using passive gymnastics current, following the facial muscles.

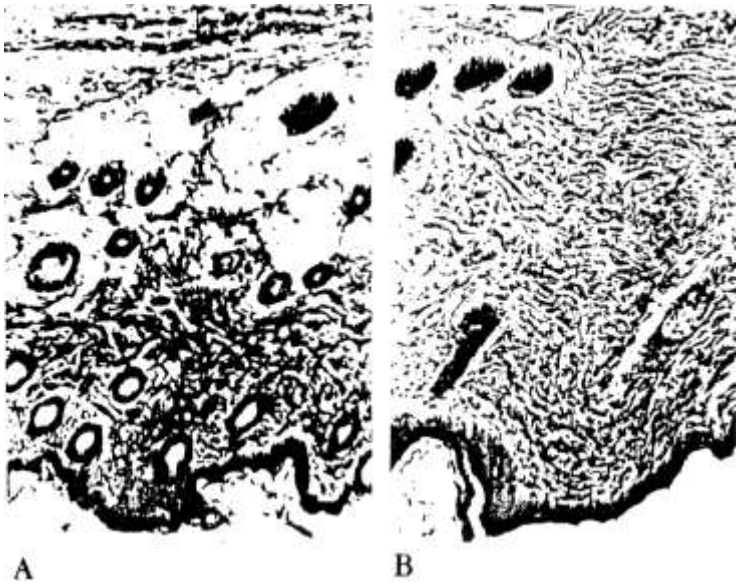
9. Apply a mask with amino acids for 15 or 20 minutes.

10. Remove the mask with lukewarm water and apply a hydrating cream appropriate to the type of skin being treated.

This dermohydrating repair treatment must follow the following pattern:

- *In cabin*. One session every 5 or 8 days.
    1. Frequency: One or two treatments per year, one of which without fail after the summer.

- *At home*. Maintenance on alternate days, at night, alternating with nutritive creams and without forgetting the day protective hydrating base. With a galvanic pencil 5 minutes of ionization on alternate days will be enough. Apply a mask of amino acids every two weeks.



In animal experimentation with rat skin, the effect of 15 ionisation sessions with a collagen gel, amino acids and mucopolysaccharides can be observed.

Microphoto A: cut of skin of a witness animal without treatment.
Microphoto B: cut of skin of the treated animal. We can observe a better turgescence of the tissues and the formation of new fibres.

CONTRAINDICATIONS

- Pregnancy (even recent).
- Postpartum (quarantine).
- Troubles of the skin.
- Cardiovascular anomalies.
- Mammary pathology.
- Precaution in cases of hepatitis, diabetes, external and internal scars.
- Do not use on people with pacemakers

PRODUCTS

a. The function of the products used to impregnate the plates in passive gymnastics is to improve the electrical contact plate-client. The product should be in gel format for a more effective transmission of the electrical movement.

b. The products used in galvanic treatments can have properties applicable in the field of aesthetics. As ionising products, they can be introduced by ionisation through the positive or negative pole, depending on the nature of the product supplied by the manufacturer. To avoid mistakes, always put the product in the positive (red) electrode.

Ionising products through the positive pole

- If the product is ionised through the positive electrode, the inverter (15) must be in the *normal* position (product on the red "active" electrode).

Ionising products through the negative pole

- If the product is ionised through the negative electrode, the inverter (15) must be in the *inverted* position (product on the red "active electrode).

Product on the "passive" electrode (the electrode without product)

The "passive" electrode is in this case that which is connected to the black cable. There is no need for a treatment product on this electrode, since the surface of the body under this electrode does not receive treatment. Nevertheless, it is necessary to put some solution on this electrode so that the current circulates. NEITHER TAP WATER NOR SALT WATER MUST BE PUT IN THIS ELECTRODE. These options could produce chemical burns.

Unfortunately, distilled water is not a valid option either since it conducts the current poorly. The ideal is to put a chemically neutral aqueous solution remaining neutral even after the current has passed, typically a product that is chemically a BUFFER. This type of product can be found in gel or solutions. Without such products, the passive electrode, the black one, could produce chemical burns.

The use of a buffer solution is unnecessary, logically, when working with bipolar products.

If you do not have the appropriate product for the "passive" electrode, you can work as follows:

- Put active product ON BOTH ELECTRODES.
- CARRY OUT THE TREATMENT AS IF IT WERE A BIPOLAR PRODUCT.

This second option prolongs the time of treatment, but only the parts of the body covered by BOTH plates receive the treatment.

NB. The procedure described is not the only one, but it is the easiest to use and the least prone to mistakes.

Bipolar products

There are products in which both positive and negative ions can be used. In this case, the areas of the body under the positive (red) electrode and the (black) negative electrode receive the effects of the treatment.
The procedure to observe is the following:

- Put product on **both** electrodes.
- Start the first phase of treatment with the inverter on position **normal.**
- Lower the intensity until reaching zero and wait 5 minutes before starting the second phase (*see note*).
- Put the inverter (15) in the **inverted** position.
- Rise the intensity again to the value selected and start the second phase of treatment.

Note. It is recommendable that the second step of the treatment be of the same or less duration than the first. The interval of five minutes between the first step and the second is given as an orientation. Consult the manufacturer of the product for any doubt.

START UP

As prior precautions, the beauty professional must ensure that the intensity controls are on zero and the electrodes are well cleaned and disinfected. Avoid areas of continuity on the client's skin. The treatment must focus on the area to treat, the ionisation substance desired, the polarity to apply (or change of polarity), intensity and time. Prepare the solution before starting the treatment.

1. Check that the equipment is connected.
2. Activate the on switch (1).
3. Put a gauze, filter paper or sponge or apply the product directly on the skin.
4. Put the static electrode on top or adjust the electrode-holder handles with their corresponding roller accessory if you wish to use the microgalvanic. To this end, the electrode holders must be connected to the relevant outlets (8, 9), and the microgalvanic switch (12) must be on. The relevant pilot light for that option (13) change colour, adapting to the choice made.
5. Connect the polarity selected on the relevant switch (10). The relevant pilot light for that option (11) change colour, adapting to the choice.
6. Turn the intensity control of the galvanic current (6) and increase slowly up to the value chosen. Maintain the same treatment time and change the polarity half way through the treatment if it is convenient.
7. At the end of the treatment, slowly reduce the intensity to zero and turn the switch (11) to its off position. Remove the electrodes and clean them.
8. Turn off the main switch (1).

IMPORTANT

- To avoid mistakes when starting a new session, always make sure that the inverter (10) is always off and on its normal position when finishing a treatment.

- Thoroughly clean all electrodes and covered used in each treatment with soap and water at the end of the session.

- In some cases a certain reddening of the skin can be observed when removing the electrodes. This phenomenon, known as *endosmosis*, is caused by the movement of fluid particles of the tissues that are concentrated in front of the cathode. This reddening is perfectly normal and disappears after a short period of time. Likewise, due to the movement of the ions, the client can feel a sensation of heat in the treated area. We must try to reduce this heat production, using the whole surface of the electrodes. When only a small part of the total

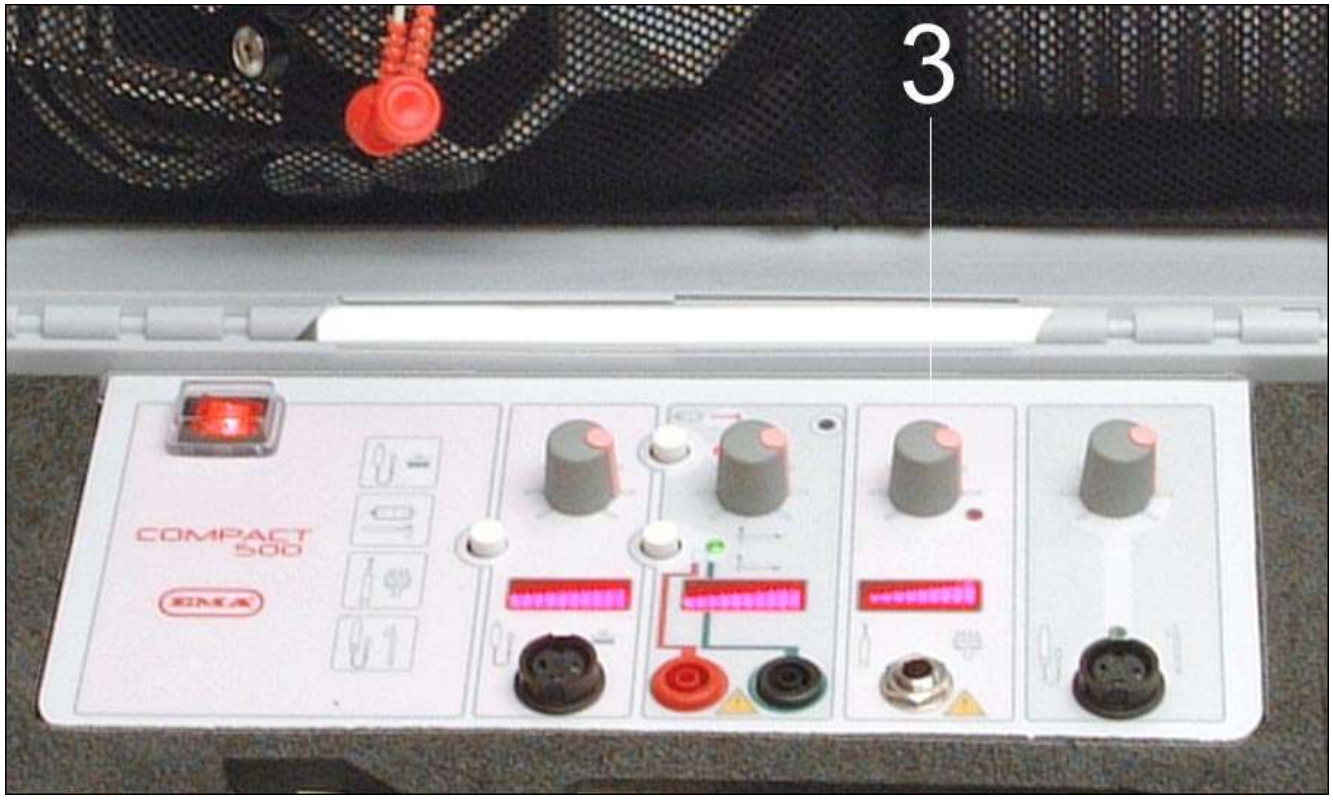
surface of the plates is used, the heat generated concentrates in that area and there is a risk of burn. However, when using the whole surface of the electrodes, the heat produced is spread throughout the surface of the skin in contact with the plate. To make sure that this contact is perfect and that the electrical conduction of the current is optimum, the covers and cotton wool that cover and protect the electrodes must always be moistened.

- It has to be mentioned that ionisation produces a certain effect of hardening in areas close to the anode, which is used for firming treatment.

- This phenomenon comes from the change of permeability of the skin as a result of the movement of ions and fluids.

- In the description of descaling and acne treatments the negative ions have been considered as the active ones. If on the other hand the active ions of the product used were the positive ones, the inverter at the front of the machine (10) would have to be pressed.

3. FACIAL PASSIVE EXERCICE CURRENT

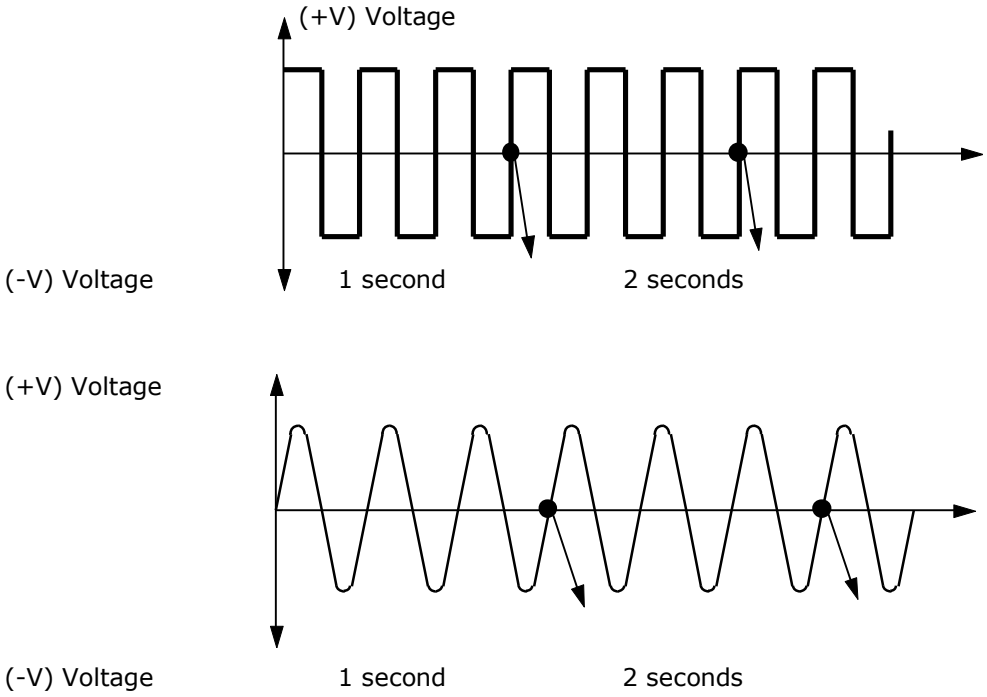


The **passive gymnastics** unit corresponds to the third window of the COMPACT 500.

Detail of the passive accessory (facelift)

PASSIVE EXERCICE CURRENT MODULE

Passive exercise currents are alternating currents of different forms, presenting a variation of intensity in relation to time.



The characteristics of this machine allow to use muscular excitation in order to achieve the maintenance of muscle **tone** and muscular resistance with **aesthetic** ends.

This technique is known as *passive gymnastics*, and its base is the production of muscle contractions similar to those of active exercise for body maintenance, as much of the muscle system as of health in general for the cardiorespiratory stimulus that they provide.

Exercise has a very definite action on reduction by three different forms of application:

- it increases energetic expenditure;
- it increases basal biological reactions;
- and it reduces appetite.

The aim of passive gymnastics currents is to act on the muscle fibres and cause their contraction. First, we see an intuitive image of natural muscle contraction. We are going to limit ourselves to the voluntary muscular contraction, since there are also muscles that contract independently from the subject's will (as for example the heart).

The motor muscles are made of groups of cells called muscle fibres that have the possibility to contract. The contraction of these clusters of cells is produced when it is *ordered* by the nerve in contact with each muscle fibre, in a message sent by the brain. This order is translated into an electrical tension generated by the body in a natural way. Nevertheless, can this nervous pulse be reproduced artificially? The answer is yes.

The technique gives us the possibility to induce the contraction of a muscle through the application of a current produced by a machine. If the machine produces the adequate electrical signal, this will be dealt with by the muscle in a similar way to the *order* of contraction that the nerve conveys in a natural movement.

The muscular mobilisation produced by this appliance, nevertheless, has differences with the natural functioning of the muscle. These differences are various: the appliance is far less precise than the natural functioning. Instead of having thousands of minute electrodes over each muscle fibre as nerve endings do, we only have several pairs of plates acting as larger electrodes and connected externally to the skin.

From these differences between the natural functioning and the movement of the appliance, we can deduce that the client's characteristics are essential to the approach of the treatment, since the passive gymnastics current produced by the machine does not act directly on the muscle. The nervous pulse crosses the layer of subcutaneous adipose tissue, which is an insulant, and therefore more or less power is needed to really reach the muscle's motor points. Besides the fat, there are other factors to consider such as the type of epidermis, bone structure...

Another important factor to consider in order to obtain good results in *passive gymnastics* is the position of the plates. These electrodes must be placed over the desired motor point(s) with precision so as to excite only those fibres of the motor branch that we are interested in. In general, **only one muscle** is excited if the plates are placed on the muscle's **extreme** motor points. **The entire muscle mass** is excited if the plates are placed **transversally** to the cluster of muscles.

In order to locate the motor points, consult the corresponding graphs, since these points vary from one subject to the other. For this reason it is best to locate them in an individualised way for each client using the diagrams.

The **pressure** exerted by the plates on the skin's surface during the treatment is vital for results. If they are too loose, the resistance that the contact surface presents increases and efficiency is reduced. However, as the objective of the application of the trains of movement is to improve blood flow, if too much pressure is exerted the circulation is obstructed. The plates acting as electrodes must meet certain conditions in order to exert good electrical contact, adapt themselves well to the body, be hygienic, etc.

There are many types, each with its advantages and drawbacks. Rubber plates have a resistance of several ohms, which means that the power supplied on each point of contact with the treated surface reduces as the distance between the plate's point of contact and the treated surface increases. This factor shows how important it is to place the plates correctly and makes them suitable for use in *passive exercise* treatments. They cannot, however, be used for an unlimited length of time because the inside of the rubber contains carbon particles which gradually disappear. For this reason the rubber gradually becomes insulating and the worn out plates must be replaced with new ones.

EFFECTS OF VARIABLE CURRENTS

The main **action** of these currents is represented in its **effect** on **muscle mobilisation** although, logically, they have other application effects that can broaden their operative range. What we are mostly interested in is the mobilisation effect.

Mobilising effect

All living tissues are capable of reacting both to external actions and to modifications of the internal environment. Irritability is a general characteristic of living matter. Among all the tissues, the nerve and muscle tissues are the most suitable to receive excitations and react, this reaction being the **contraction**.

They are called *excitable*, which means that they have excitability or are capable of responding to an energetic variation of the environment by an inner change; this variation is called **stimulus**. The relationship between the action of peripheral factors and the reaction of tissue is called *state of excitability* or *state of excitation*.

Normally the nerve cell is put into action by **a single excitant**. There are several excitants capable of stimulation: **mechanical**, **thermal**, **chemical** and **electrical**.

Electrical current is the best of these excitants. Electrical excitation, indeed, presents many **similarities** with the majority of **excitants**: it is easy to measure, does not cause permanent changes in the elements that it crosses and, above all, puts into action minimal amounts of energy.

Other important effects of the variable currents, apart from muscular excitability, are:

- **Improvement** of the peripheral return **circulation**, which helps to eliminate waste products.

- Stimulation of the **local biological reactions**, where the muscular excitation takes place, with which overweight, cellulites, flabbiness, etc. can be treated.

CONTRAINDICATIONS

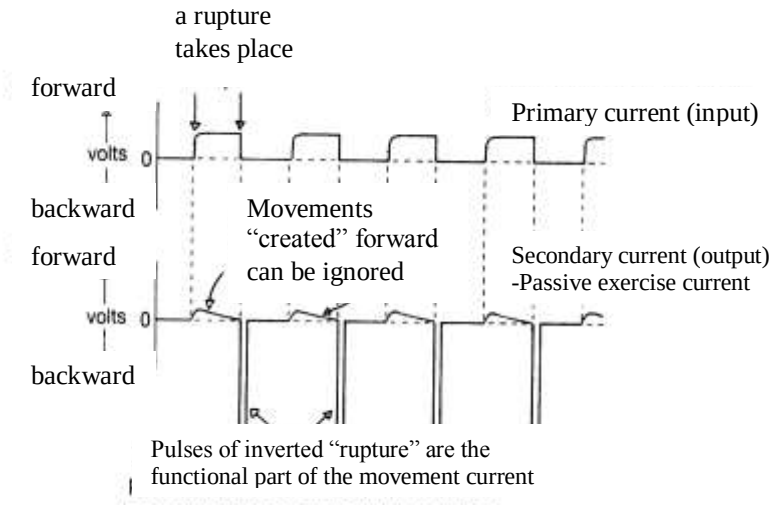
- People with a pacemaker.
- Any type of muscle lesion.
- The intensity of the contraction must never be painful. Excessively intense contractions can produce muscle tear or injury.

Passive gymnastics through electrical currents

When an intense and sharp electrical movement passes through the body, the muscles in its way contract in response. An electrical current flowing as a not too fast *series of pulses* will make the muscles *contract and remain contracted* during the time that the current flows.

- A direct interrupted current in the form of a series of small, sharp pulses through the body is called ***passive exercise current***.

Sinusoidal beauty treatment



Current as shown on an oscilloscope

How the sinusoidal current contracts the muscle

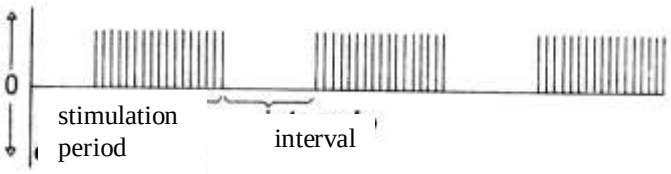
When we consciously decide to move, the brain sends electrical messages through *motor nerves* to those muscles that will be contracted to create movement. The electrical messages from the brain consist of a series of *electrical pulses*.

As soon as *external* electrical pulses of the same type of frequency (up to 100 pulses per second) are introduced in the organism, they must also be captured by the motor nerves and generate a muscular contraction.

Nevertheless, nature conscientiously tries to prevent this factor. The high resistance of the skin prevents our bodies controlling other people's bodies merely by touching. Also, each nerve is *isolated* by a fat *myelin sheath*.

This means that, first, exterior pulses must have a fairly high voltage in order to cross the skin and, secondly, they must be directed to the *motor points* of the muscle so that this detects them easily. The *motor point* is the point of the muscle where the motor nerve enters. The electrodes must be carefully placed so that the flow of current through the body is produced in this motor point.

While the current passes, the muscle contracts and remains contracted. The current decreases and the muscle relaxes. The muscle can be stimulated so that it contracts and relaxes alternately through the adjustment of the current.



Owing to the high resistance of the skin, applying a sufficient current to develop an effective treatment can generate a characteristic sensation in the client.

Electrodes

In order to complete the circuit through the client, the passive exercise current is applied through electrodes.

Plate electrodes

Electrodes need a conducting agent to transmit the current through the skin. Modern body electrodes are made of *plastic impregnated with carbon* that makes them electrically conductive. A thin layer of neutral gel must be applied to improve current contact and transmission between manual electrodes or rubber plates and the client's skin.

Locating the plates on the client

Electrodes must be used jointly with their homologous pairs to obtain complete circuits. Nevertheless, there are a number of methods of application of these pairs of plates:

In *duplicate motor* plate location, the pair of electrodes is placed in the motor points of **two adjacent muscles**. The current only has a short path through the body from one electrode to the other. Another pair of plates is normally applied in the corresponding muscles in a different part of the body.

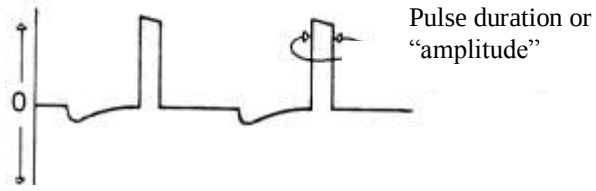
In *separated plate* location, one plate is put on the **motor point of a muscle** and its homologous pair is placed on the equivalent muscle on the **other part** of the body. This method is not recommended.

Longitudinal plate location is useful where the motor point of a muscle is not easy to locate. One plate is placed near its origin and the other near the insertion of the *same* muscle. The current *has* to pass the motor point.

On the face, where a number of motor-points are close together, conventional plate application is not possible.

Duration of the passive exercise pulse

Normally, every brief and intense passive exercise pulse lasts 0,3 milliseconds (about 3/10.000 of a second).

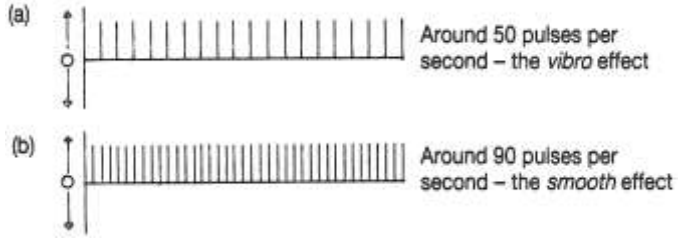


MOVEMENT DURATION OR AMPLITUDE
IN MOVEMENT PULSES

Frequency of passive exercise pulses

A pulse frequency of 40-60 pulses per second produces a **vibratory contraction** of the muscle. This is known as ***incomplete tetany in the muscle*** or ***vibratory effect***. The muscle vibrates because it has time to *relax* a little before the next contraction.

Turning up the frequency to around 90 pulses per second produces a **steady contraction**, a ***complete tetany*** or a ***smooth effect***. The muscle does not have time to relax between one pulse and the next.



Recent investigation and research have shown the structure and the control of the motor nerve of a muscle to be much more complex than was thought. Within a muscle are ***three*** **types of fibres**.

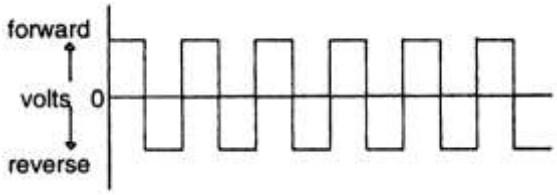
The motor nerve which controls each type of fibre **communicates** with **different frequencies** of pulses.

- **Slow oxidation:** non-fatigable stamina fibres - constitute up to 50% of a muscle and are stimulated by frequencies of 6 to 15 pulses per second.

- **Fast glycolytic oxidation:** the main *strength* fibres with a tendency to fatigue and tiredness. Constitute up to 50 per cent of a muscle and are stimulated by frequencies of 20 to 45 pulses per second.

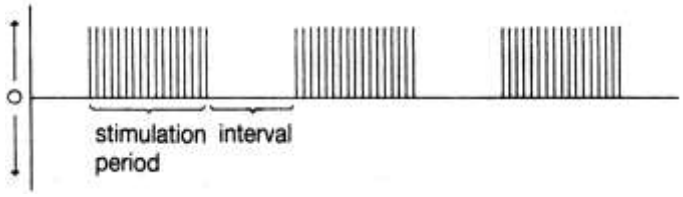
- **Fast glycolytic:** fibres with *explosive power* fibres for sprinting, jumping and high intensity activities. Tire easily and are stimulated by frequencies of 50 to 70 pulses per second.

At a maximum of 120 pulses per second, muscle stimulation is far less effective. The motor nerves cannot transmit pulses much faster than this. However, because higher frequencies pass through the skin more easily and with less discomfort, some machines are made using much higher frequencies of 400, 600 and even 800 pulses per second. With these frequencies, it has been shown that the passive exercise current has no effect. Instead they use an *alternating* ***square wave current*** which has been shown by experiment to be effective.



Timing the movements and intervals

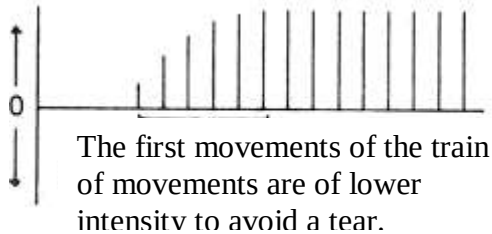
Electrical movements are achieved through *stimulation period* and *interval*. Analysing the signal of the current in an oscilloscope, we can observe which are the stimulation periods and the intervals, as the following image shows.



Train of movements

The series of pulses producing movements or a stimulation period is known as train of movement. The nature of the contraction can vary according to the individual strength of the pulses creating the train of movements.

A train of movements too abrupt and aggressive with pulses of the same intensity tends to create an unpleasant feeling of heartrending contraction. This happens because the first few pulses of the same intensity move more freely through the skin, for its intensity gradually builds, and for this reason they are more effective at the time of contraction.



The first movements of the train of movements are of lower intensity to avoid a tear.

In most machines, therefore, the first pulses of each train of movements are of lower intensity and gradually increase. This effect can be observed by means of an oscilloscope.

A passive exercise current with a real train of movements

The beauty professional must create a gradual train of movements based on an increase in its progressive strength and a slight reduction, contracting and relaxing the muscle.

Physical effects of the beauty treatment with passive exercise currents

Simply, the purpose of beauty treatments using passive exercise currents is to cause muscles to *contract* and *relax* alternatively, to exercise them with no physical effort on the part of the client.

Hence the terms *passive exercise* of *passive gymnastics*.

Since no movement of the joints or limbs occurs, it is an *isometric* exercise.

Its purpose is *figure-control* by improving muscle *tonus*. Because of their lifestyle, most people make little use of their body muscles, particularly those of the upper arms and shoulders, the abdomen, buttocks and thighs. The underused muscles gradually stretch and when relaxed, hang slack, which results in a deterioration of the figure and adds extra centimetres to the measurements. This, together with a lack of response due to a reduced rate of the biological reactions within the muscles, causes a lack of tonus.

An exercised muscle will remain under a certain tension even when relaxed. That is when we can say that its tonus has improved.

By toning up flaccid muscles this way, it is possible to reduce the measurements of the waist, the hips, the thighs and the upper arms, and generally to firm and shape the figure.

Similarly, toning up the muscles of the face and neck improve the facial features. Many clients find it difficult to exercise their facial muscles themselves.

The effect of deliberately exercising a muscle whether by voluntary contraction or passive gymnastics is to improve its biological reactions and its responsiveness. This creates a demand for extra oxygen and energy foods and an increased output of cellular respiration waste, which causes the dilation of the muscle capillaries and increases the blood supply. The alternate contraction and relaxation of the muscle increases the movement of waste through the pumping action on the peripheral veins.

Using some programs conceived to this end, peripheral venous circulation and toxin elimination of a leg can be stimulated by locating the plates specifically and by the *sequential contraction* of the muscles from foot to thigh.

Passive exercise current in combination with other treatments

Usually, passive gymnastics is used as part of a programme of treatments for the client. More than one type of equipment can be included in the programme. For instance, *galvanism through the body* might be used as a preparation to *passive gymnastics*. By stimulating the biological reactions, galvanism improves the response to the passive gymnastics. Machines are available which send both galvanic currents and passive gymnastics in the same pair of plates or separated electrodes.

Time of treatment

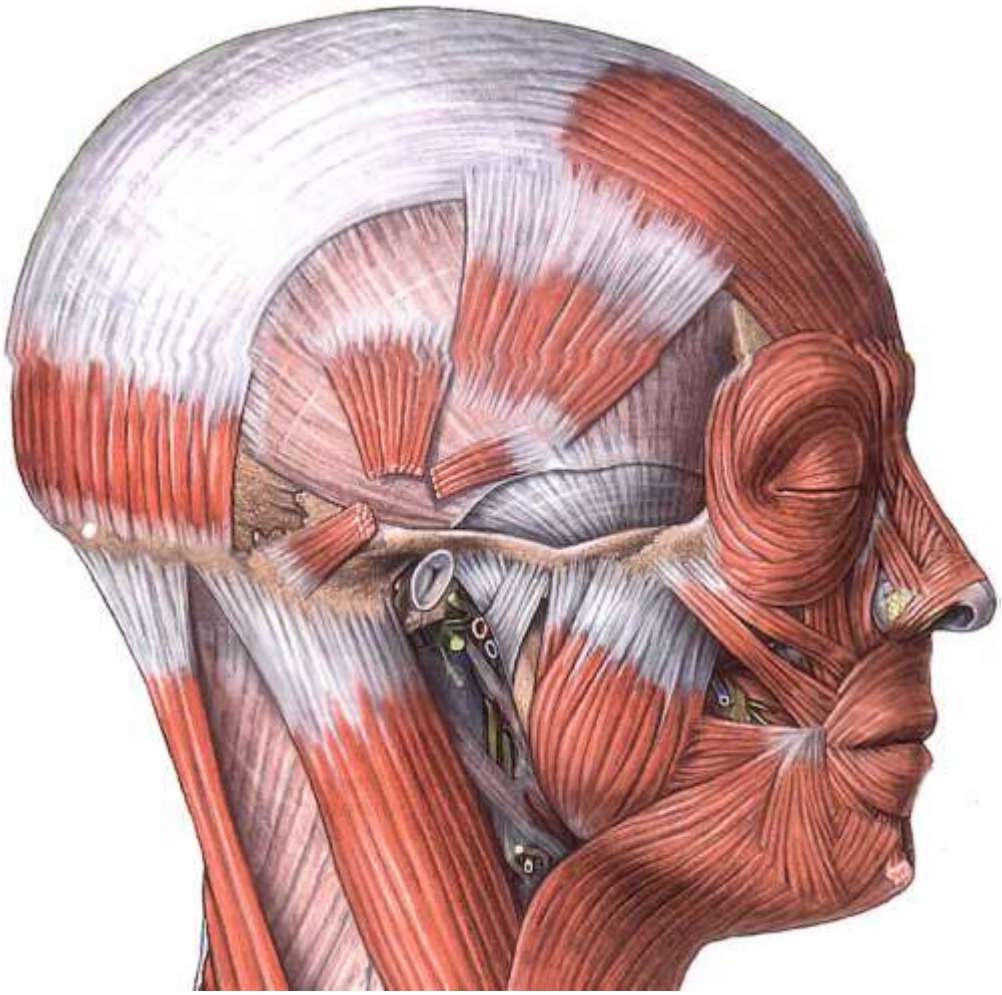
The duration of a passive exercice treatment is relatively short. For the method of plate location, the treatment can last 20 minutes or so. The manual method using passive gymnastics handles should produce at least 12 contractions in every muscle treated to be of any real value.

Contraindications and precautions

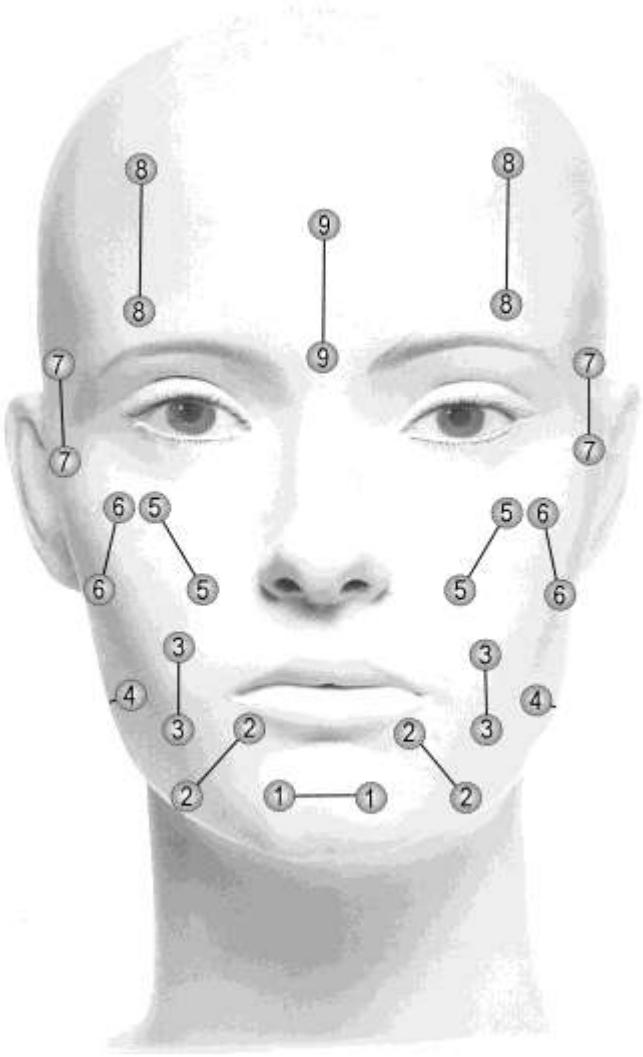
The contraindications of passive gymnastics are the same as for a general treatment. An additional precaution is that you should avoid applying the treatment in an area close to the heart. The current could act as a pacemaker and effect the cardiac contraction.

Also be careful when you put the plates on the client and begin the treatment. Always make sure that all the intensity controls are at zero before switching on the machine. Afterwards, gradually increase each control until the client feels a slight tingling sensation under each pair of plates. COMPACT 500 is provided with a safety device not allowing its operation until all the intensity buttons are at zero.

ANATOMIC MAP

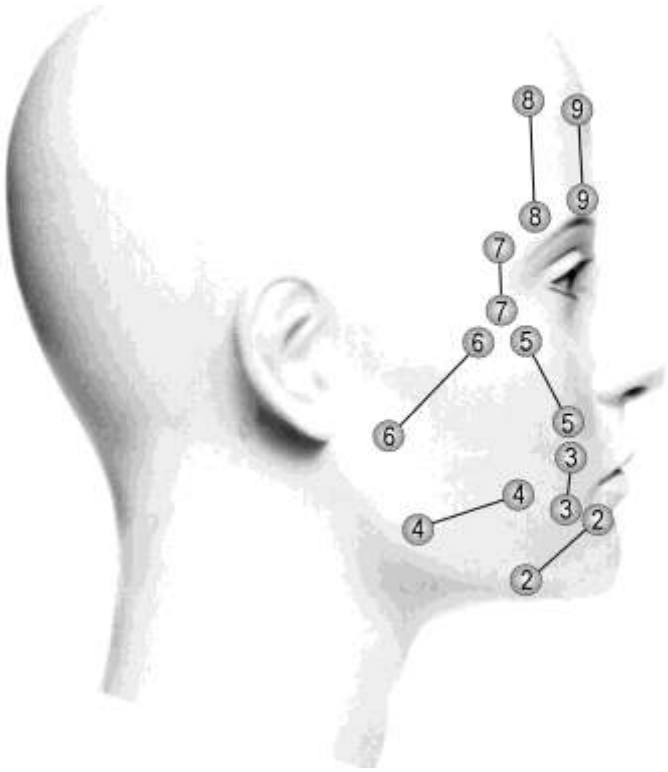


FACIAL FIRMING TREATMENT



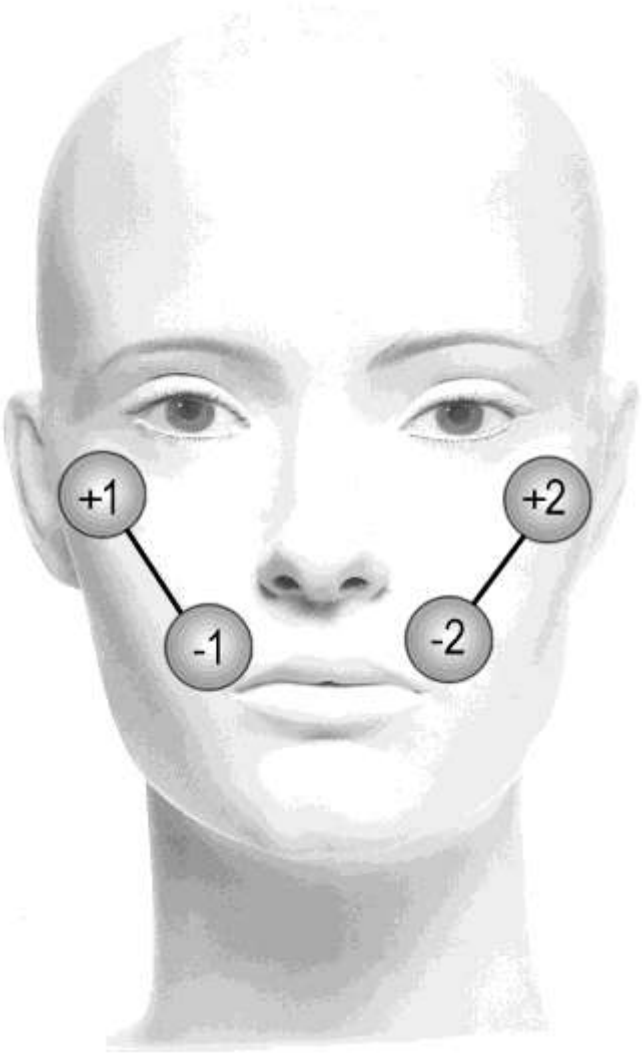
FRONT VIEW

FACIAL FIRMING TREATMENT



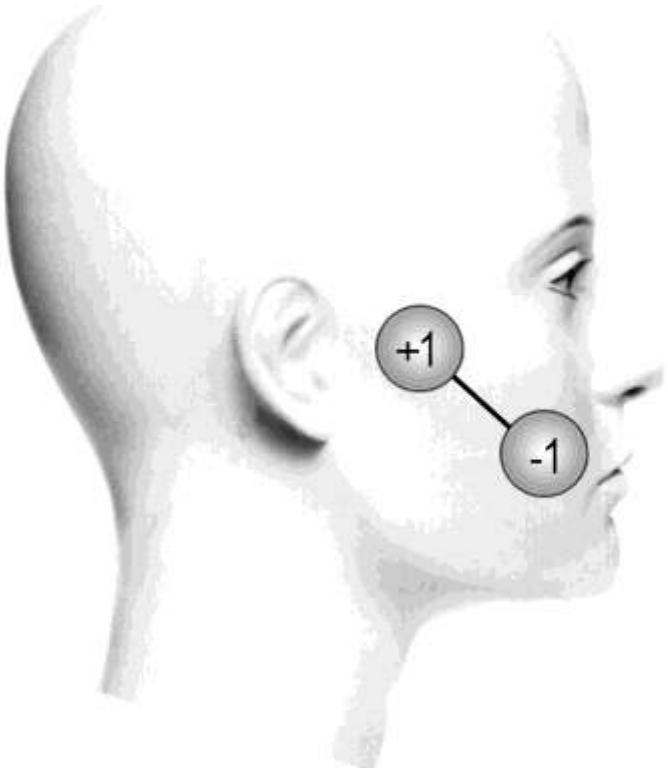
SIDE VIEW

FACIAL FIRMING TREATMENT
(automatic plates)



FRONT VIEW

FACIAL FIRMING TREATMENT
(automatic plates)



SIDE VIEW

START UP

As preliminary precautions, the beauty professional must ensure that the intensity controls are on zero.

1. Check that the equipment is connected.
2. Activate the on switch (1).
3. Connect the electrode holder handles of passive exercise currents to their corresponding output at the front of the machine (27) and adapt the accessories (ball or hammer electrode, etc.).
4. If the orange pilot (14) – for electrical protection – is lit, place the current intensity control (15) to zero. This action will desactivate the protection circuit, switching off the flashing pilot (14). Turn the intensity control of the passive exercice current (15) and slowly increase until you reach an optimum value.
5. Apply the electrode-holder handles with their respective accessories on the motor points of the face muscles. We can observe how the muscles contract when the current flows.
6. At the end of the treatment, slowly reduce the intensity to zero.
7. Turn off the main switch (1). Remove and clean the electrodes.

NB: To use the facelift option with the accessory of automatic passive gymnastics, the protocol remains the same.

The automatic passive gymnastics accessory is controlled by a button common to all outlets. This factor must be taken into account when placing the plates on the muscular insertions, since the cheek muscles react differently from the forehead muscles when confronted to the same intensity.

The automatic facelift accessory must be used exclusively with individual plates. These plates are self-adhesive: they easily hold on the skin surface. Bear in mind that for an efficient adhesion, the client's skin must be clean and not contain any sliding agent such as creams or ointments, which interfere with the plate fixation.

It is recommended to use the single-use self-adhesive plates on the surface of the client's skin before connecting the equipment. Once the motor points are selected, connect the accessory in its corresponding support (17) and put the power on (15).

At the end of the programmed time, reduce progressively the power until zero (15) and turn off the switch (1).

The pilot light (18) allows the beauty professional to determine the intensity of the passive gymnastics applied to the client during the treatment. With a low intensity, the pilot will take a light green colour. Under a high intensity, it will be of a shiny green. The same pilot light enables to control the transmission of each passive exercise movement. This characteristic allows the beauty professional to supervise the effects of passive gymnastics during the treatment.

The pilot light of the safety device (14) emits a flashing light signal that activates in case of a power outage. It informs that the equipment is locked against the possibility of an output remaining open after an unexpected return of the current. Its purpose is to safeguard the client's safety at any time. Its action is common to modules 4 and 5 of COMPACT 500 (galvanic currents and passive gymnastics). To restore the normal operation of the equipment, only check that the power controls corresponding to each of these modules (6 and 15) are on zero.

Detail of an automatic passive gymnastics accessory (face lift)

4. HIGH FREQUENCY

The **high frequency** unit corresponds to the fourth window of COMPACT 500.

HIGH FREQUENCY MODULE

High frequency is a variable alternating current with an approximate voltage of 30.000 to 40.000 volts and a frequency of 150 to 200 kilocycles. As it is found at very high frequencies, this current is not capable of producing muscular excitation, since to obtain a muscular contraction the wave needs to last besides having a certain intensity.

Thermal effect

The thermal effect is produced by the passage of an electric arc from the electrode to the person treated, leaving a certain amount of energy on the skin in the form of heat. This rise of temperature, although not very high, is capable of acting on the biological reactions by increasing them as well as the cellular oxygenation and eliminating carbon dioxide.

Peripheral vasodilator effect

A pronounced effect of these currents is the stimulation of the peripheral blood flow. The peripheral action of the high frequency produces a slight reddening of the skin.

Antibacterial effect

Another important, clearly-demonstrated effect of high frequency is the antibacterial action of these currents, as well as that of weakening the activity of the bacterial toxins. This is mainly due to the formation of ozone. The spark or arc light that passes from the electrode to the skin crosses the small layer of air that separates them, producing the physical phenomenon of converting atmospheric oxygen into ozone. This gas is very unstable and reacts rapidly with different compounds, causing an oxidation that explains its germicide and antiseptic properties.

High frequency accessories

The accessories of a high frequency apparatus are glass or quartz electrodes with diverse shapes and applications. When the current goes through the electrodes, it lights up inside with an orange light if it is made of NEON or blue if it is of VIOLET.

As the multiple qualities of high frequency currents are known, we are not going to show here more than a few of the many treatments that can be performed and that are the most common.

HIGH FREQUENCY

High frequency is a beauty treatment that both beauticians and clients either love or hate, because without reasonable care it is easy to give yourself or the client small, benign but appreciable electrical shocks.

So why do we use it? Depending on how it is used it can be peripheral, circulatory and soothing, stimulating, astringent or mildly antiseptic.

A high frequency current is basically a very fast alternating current. An alternating current alternating few times every second is a *low frequency* current – for example, the socket that alternates with a frequency of 50 hertz. An alternating current alternating at thousands of hertz is *medium frequency*. Currents of 4000 hertz used in interferential beauty treatments are an example. An alternating current alternating at 100,000 hertz or more (even millions of hertz) is *high frequency*. At these frequencies, these currents have some unusual properties that are used in beauty treatments.

Properties of high frequency

High frequency goes through the body in a very simple manner. Remember that high frequency means *low impedance*. This also means that it easily goes through all types of substances that are normally electrical insulants, and at high voltages the current is very difficult to contain.

This explains the ease with which those small electrical shocks take place.

Body tissues have a high *water* content. Concentrated through the treated area, the *energy* of the high frequency current is absorbed by the *water molecules*, stimulating and making them vibrate and heat up. High frequency increases the temperature and *heats* the tissues.

An unusual but very useful effect of high frequency current is that it passes along a conductor like a wire or metallic bar to its end. Then its energy passes cleanly until the end of the conductor to be *transmitted* as *radio waves*. Any radio, television or radar transmitter depends on this effect. The frequencies used in the beauty treatment appliance must not cause undue interferences in radio and television receivers.

Located near another conductor such as a piece of metal or the body but *not* touching, high frequency will skip the space between the two elements with a *sparkle*. It is this sparkle which produces the stimulation and asepsia effects during the beauty treatment. These sparkles can create slight electrical shocks if not enough attention is paid.

High frequency in the beauty treatment

Two types of high frequency are used for their aesthetic effects. One is a high frequency current of lesser frequency and *high voltage* (this is not really a contradiction). This current is produced by the high frequency appliances of beauty salons and by the beauty treatment appliances. The frequency is around 100,000 to 250,000 hertz and, if it is transmitted from the electrodes, is radiated as *long wave* radio waves.

The other one is a current of greater frequency, lower voltage used for epilation, the permanent elimination of unwanted hair. Its frequency is usually 27,150,000 hertz (or 27.12 megahertz).

When it is transmitted through the epilation needle it is radiated as *short wave* radio waves. This system of epilation is called "*epilation by short wave*".

High frequency current

The outlet of the high frequency current is an alternating current of high frequency (100,000 to 250,000 hertz) but of fairly low power, so the flow of the current is very low.

Applying high frequency to the client

High frequency appliances in aesthetics transmit high frequency energy to the client using a *single* electrode. Fairly unusual for electrical currents, it does not need two connections to complete a circuit. The energy of high frequency is *in contact* with the ground or dispersed within the client's body. The effects of the current are concentrated around the contact point of the electrode and, for this

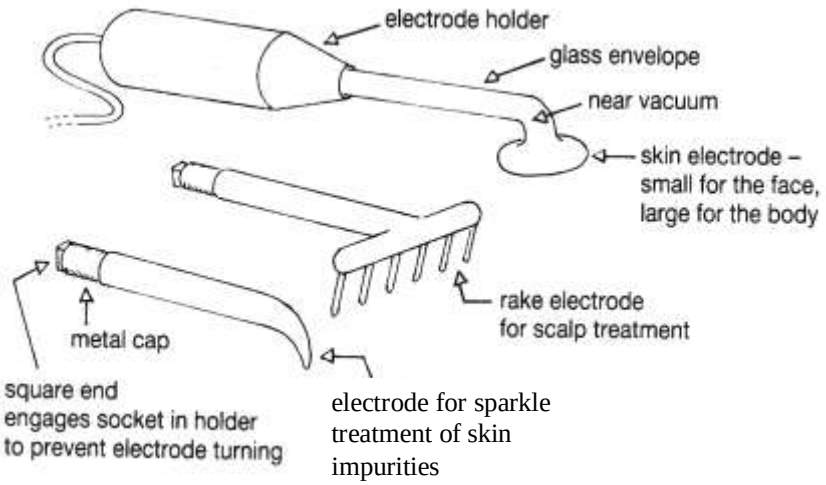
reason, can only be *superficial*. The special electrodes necessary are those described below.

Physiotherapists require much more often a *heating effect* much deeper from their *diathermia* appliances by high frequency. They normally have two electrodes located in both arms, both sides of the area to treat, and high frequency is introduced through the human tissues situated between them in the form of radiowaves. Alternatively, there can be a cable of extremely flexible cord that can also be applied to the treatment area.

Electrodes used in aesthetics

A variety of *glass* electrodes are used for the beauty treatment with high frequency. For the majority of the treatments, a metal electrode could dangerously shower the clients with sparks.

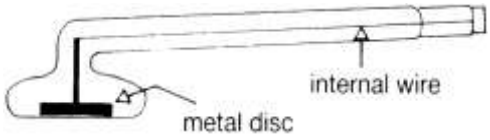
Glass electrodes are objects of closed surface that have been given specific shapes to cover each treatment. There is a *void* inside them. High frequency is introduced through the metallic terminal that *must be inserted* by pressure in the electrode holder handle.


electrode holder
glass envelope
near vacuum
skin electrode – small for the face, large for the body
rake electrode for scalp treatment
metal cap
square end engages socket in holder to prevent electrode turning
electrode for sparkle treatment of skin impurities

High frequency energy causes the *ionisation* of some of the atoms of the little quantity of air inside the electrode. In ionization, some electrons are expelled from the atoms, converting them into charged *ions*. The current then flows easily across the tube until the contact point with the skin, making these ions vibrate. The ions, however, soon recover their electrons and return energy by transmitting it in the form of light and ultraviolet radiation. Electrodes with *air* produce a violet gleam. They are called MacIntyre *violet radiation tubes*.

Some electrodes contain a bit of mercury vapour and shine with a blue colour. Some contain neon and shine with an orange colour. As they are made of glass, the ultraviolet produced cannot escape. But be careful: some electrodes made of *quartz* let fairly high doses of these ultraviolet radiation escape. Electrodes made of quartz are not differentiated from the glass ones at a simple glance and are not available through suppliers of beauty salons. They must not be used for beauty treatments.

Intensifying electrode

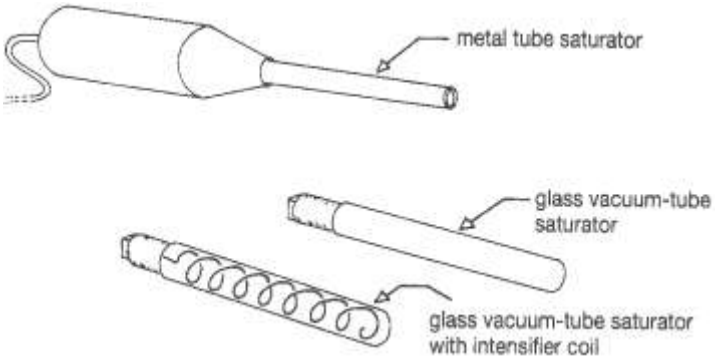


Intensifying electrode

In order to improve the efficiency of the transmission of high frequency energy to the skin, the intensifying electrode has an internal wire that connects the contact terminal with a metallic disc located inside the glass where the electrode touches the skin. This means that more energy succeeds in getting to the skin.

Saturating electrode

In the *indirect* method of high frequency application, the client is charged with high frequency energy by fixing a saturating electrode while the beautician manually massages the treatment area. Various types of saturating electrodes are available. The most simple is a *tube* or *metallic bar* that fits inside the electrode holder handle. This electrode can give unpleasant sparks in the hands if not firmly held by the client. A cylindrical glass electrode is much more comfortable to use. An *intensifier* with a metal spiral inside can also be used.



Direct application of high frequency

High frequency treatment can be used in the client in two different ways: method of *direct application* and of *indirect application*.

In the *direct method*, the beauty professional fixes the electrode in contact with the treatment area and moves it gently over the surface of the skin. The electrode *discharges* its high frequency energy in the skin on the point of contact. Besides this *heating effect*, the *stimulating effects* of sparking take place between the electrode and the skin. The superior and predominant effect of direct high frequency is that of an *increase of stimulating temperature*.

In the indirect method, the client holds the *saturating electrode*. To prevent the wear and suffering of the electrode, the client must hold the electrode-holder handle with one hand and the electrode with the other. He/she is therefore charged with high frequency energy. The beauty professional then gently massages the client and high frequency is discharged from the client towards the fingers of the beautician in contact, concentrating the energy – the heat – in that area. There is little sparking, and therefore little stimulation.

Summarizing:

- The application of *direct* high frequency produces an *rise of temperature* and is *stimulating*.
- The application of *indirect* high frequency produces a *rise of temperature* and is *soothing*.

Effects of high frequency

The reactions of the body to high frequency treatments are responsible for the *heating* and, when there is a direct application, for the responses to *sparking*. In a way, both types of response are in *conflict*.

Effects of heating

The rise in temperature diminishes the responses of the periphereal nervous system. This way, a *soothing* effect is produced. The heating produces the dilatation of the blood vessels, increasing the flow of fluids through the area to disperse the heat. This will increase the biological reactions and the recovery time of the damaged tissues. In the areas of the body with *greater fat accumulation* such as the breasts, it can stimulate the accumulation of fat. However, those using this treatment as a system to add centimetres in this area are soon disappointed with the results, or the absence of them.

The heating produces, however, an increase of sweating and of the sebaceous secretion that contributes to the deep cleansing of the skin in the area and can be beneficial for dry skins.

Physical effects of sparking

We will now consider the conflicting effects of the sparking that accompanies the *direct* method. These effects are dual: the first is due to the *stimulation* and the second is due to the *antiseptic* effect.

A tickling effect is felt when the sparks activate the nerve endings in the skin. This *stimulates* the sensations of the skin. It also has an *astringent* effect, firming the skin and closing the pores to reduce the secretion of fat. Direct high frequency helps drying greasy skin and improves its texture.

The *antiseptic action* of high frequency sparking of has three aspects, for which, in theory, it should be more effective. The sparkles can burn and kill bacteria in the skin. Sparking produces ultraviolet radiation that kill bacteria. The sparkles *ionize* oxygen from the air forming ozone that also kill bacteria.

Oxygen (O_2) is converted into ozone (O_3).

Ozone is unstable and soon disintegrates:

Ozone (O_3) $\Rightarrow$ Oxygen (O_2) and oxygen (O)

Oxygen atoms, called *rising oxygen* or *active oxygen*, are powerful oxidants and are lethal for microorganisms.

This treatment is characterised by the strong smell of ozone that accompanies the high frequency treatment.

Skins that can benefit from high frequency

The effect of direct high frequency treatment is very valuable in *greasy skins*, where its astringent action reduces the fat secretion and its antiseptic action reduces the presence of blackheads and other skin impurities. It is also said that it is valuable in skins that tend to *age*, where the stimulating action of the astringent firms, but very temporarily. It is also useful in skins with a problematic tendency for its antiseptic action and for its ability to "burn" blackheads.

Drying these impurities can be achieved by the elevation and angulation of the facial electrode over the blackhead in order to produce a shower of sparks, or also by using a long and narrow **electrode** especially conceived for impurities.

Precautions and contraindications

Contraindications of high frequency are almost non-existent. From this point of view, the treatment is completely *harmless*. But little accidental *shocks* that can bother the anxious client are easily produced.

First you must fully explain what the client will *feel* and particularly the *sparking*. The treatment can frighten a client who does not know what to expect.

Then make sure that the client does not touch any nearby element. Make absolutely sure that the hands are not close to the metallic edge of the seat or bed, otherwise the current will pass to the ground from him across the metal. Similarly, it is also a good idea to remove any metallic object of jewellery, particularly those that can be held freely over the clothes. Elements adapting to the skin in a compressive way like wedding rings must be removed.

When the treatment begins, do not connect the machine until the electrode enters in contact with the skin, or place your finger over the glass until it comes into contact with the skin, which can also reduce the initial electrical shock. Likewise, at the end of the treatment, disconnect the appliance or put the finger on the glass again before lifting the electrode. This is done to avoid sparks between the void of the electrode and the skin. COMPACT 500 includes electrode-holders with a button in the handle to produce current only produced when that switch is activated.

Do not use high frequency on skin recently sprayed with lotions of alcohol or sulphur base lest it would produce fire in the client's skin.

Beauty professionals normally complain that they receive many electrical shocks from their high frequency equipments and ask themselves what mistake they have made. The answer is as simple as thinking that the glass electrode has been contaminated with the skin cream or by talcum powder and that the current is dragged with these remainings throughout the machine. You can appreciate how a film of moiturising cream can conduct high frequency, but it is hard to believe that the talcum powder does it too. The solution is to clean the machine and the electrode-holder handle with a cloth moistened with alcohol, without forgetting to clean the connector in which the electrodes are introduced.

BEAUTY TREATMENTS THAT CAN BE CARRIED OUT

1.- Beauty treatment of blackheads and skin impurities

It is a relatively slow treatment, for which a great consistency from the client is necessary in the continuity of the treatment. As the impurities of the cutis are produced periodically (normally, every beginning of winter) it is convenient to begin the treatment when these impurities (red and white spots, blackheads) have not yet excessively developped since they resist less at that stage.

This treatment consists of the known sparking or distance application. The smooth electrode is used. The intensity must be low. Even so and due to the tickling produced by the shower of sparks produced, the client may be somewhat nervous. To reduce this tickling and relax the client, place a folded tissue (never fibre cloth) between the electrode and the cutis. The duration of the session must not exceed three minutes in any case. During the development of the treatment the classic smell of ozone can be detected, produced by the shower of sparks. Thanks to this treatment the blood flow is improved and disinfected due to the action of the ozone.

2.- Beauty treatment of wrinkles, eye bags, crow's feet, etc.

Two different techniques can be used for these treatments: the first is carried out with the smooth electrode through direct application and the second is carried out with the metallic electrode through indirect application.

With the first one, gently and slowly slide the electrode on the client's cutis always with an up and down movement. In both start with a low intensity.

Another type of treatment is that which is performed with the pencil-shaped glass electrode. This electrode is used to carry out fulgurations.

3. Beauty treatment of dandruff and hair loss

High frequency has an important microbicidal action due to the ozone that it produces. But besides it generates a vitalizing action on the cells of the dermis and epidermis thanks to its great power of penetration and improvement of the blood flow. These two actions are combined to revitalize the scalp. For the treatment of dandruff and hair loss, the comb-shaped glass electrode is used. The intensity must be somewhat higher than in other treatments but the application time must not last more than three minutes.

4. Other applications of high frequency.

High frequency can also be used to fight blackheads. It is also advisable to apply this shower of sparks after a depilation, since it helps to reduce the irritation produced on disinfecting the epidermis thanks to the action of the ozone.

START UP

1. Check that the equipment is connected.
2. Activate the on switch (1).
3. Insert the extremity into a plug in the high frequency outlet (21) on the front of the machine.
4. Hold the electrode-holder handle in your hand, taking it out of its support, and introduce in it the the electrode that we are going to use until it is well held. Observe that there is an on switch on the high frequency handle (22).
5. Turn the potentiometer (19) to the right and select the appropriate intensity according to the type of treatment and the client's sensitivity.
6. Activate the electrode holder handle. Be sure to press the on switch of the same electrode holder handle to give the order of movement to the current (22). This switch is very useful to stop the treatment once the session is finished independently from the machine. The electrode will light up and the high frequency appliance will be activated. When using the metallic electrode, it is VERY IMPORTANT that the beautician asks the client to hold it in their hand BEFORE turning the high frequency module on. The green light (20) informs visually the beautician of the operation of this module
7. At the end of the treatment, lower the power and disconnect the module through the regulation potentiometre (19), turning it to the left. If we have used the metallic electrode, it is now and NOT BEFORE that the client must release it.
8. Remove the electrode from the handle and place it in its corresponding place with the electrode holder handle.
9. Turn off the on switch (1).

IMPORTANT

The following points must be observed for any treatment:

- Hold the electrode-holder handle the furthest possible from the current-transmitting orifice.
- The application time of high frequency recomendable per session is between 5 and 7 minutes.
- Do not touch sensitive areas with the electrodes (lips, nipples etc.)
- Touch the end of the electrode with a finger both when approaching the electrode towards the client and withdrawing it. The beautician will have to enter in contact with the part furthest from the base of the glass to avoid the client startling with the unexpected sensation of the harmless shower of sparks that he or she will receive at that time.
- Apply the high frequency preferably after the vapourization of ozone and before the face mask. It is considered to be the ideal moment.

POSSIBLE TECHNICAL PROBLEMS

1. The machine is not working. Why?

The cable of the accessories may be cut in one of its points or at the extremity of connexion to the machine. For a proper operation of the machine, replace the broken part of the cable. The equipment blocks any current output when it detects a leak. To extend the lifetime of these accessories, it is recommended to place the apparatus at a 90º angle from the working couch, to avoid any unnecessary suffering of the cables.

Also check that the plug is connected properly and that tension reaches the appliance (you can check the presence of current with another equipment). Verify the rear connector and the reliability of the mains cable, using it to connect another appliance. It thus indicates that the problem does not come form the mains cable. Once these verifications are made, the protection fuse may be examined to see if it has not meted. Finally, make sure that the mains voltage correspond to that of the equipment.

If the pilot light is on but the machine is not working, check with this start up manual that the operation process is the right one. If the problem persists, consult the technical department.

90% OF TECHNICAL PROBLEMS COME FROM A LACK OF ATTENTION WHEN HANDLING THE BUTTONS AND FROM THE NATURAL WEAR OF THE ACCESSORIES. For this reason, please check all these details before contacting your nearest technical service.

2. I discovered that the equipment does not work properly since yesterday. However, there has been a storm...

Storms and rains can sometimes affect national hydroelectric systems. If you discover problems with your electrical equipments after a storm (especially the most sensitive), it is advised to connect a current stabiliser to the machine. This electrical device facilitates the apparatus proper operation by purifying the inconstant electrical signal received by the user and creating a continuous, stable signal. Sensitive equipments can then work properly since they receive the same amount of mains voltage at all time.

GUARANTEE AND SAFETY

1. The manufacturer is not responsible for an improper use of this machine, nor for the consequences derived from it. Any use not included in this instruction manual can be dangerous. We therefore ask you to consult your nearest authorised distribution centre for any doubt.

2. Our wish to include possible improvements in our appliances compel us to reserve the right to modify the characteristics of our equipments without prior notice.

3. All equipments are provided for a **mains voltage** of 230 volts. If you require a voltage of 125V, notify it to your provider at the time of the order.

4. As MANUFACTURERS we offer a 24-month **guarantee** on our equipments against any manufacturing fault.

   In order for this guarantee to be efficient, the following technical **specifications** must be taken into account:

   4.1. Minimum specifications in the electrical installation:

   - The equipment must always be connected to the electrical current by means of a voltage regulator with ground point, whose output voltage must be included between 110 and 120 volts, in the case of installations with this voltage (particularly in Latin-American countries) or 220 and 230 volts in European countries.

   - The socket where the equipment is connected must be in perfect conditions.

   4.2. This guarantee **becomes invalid** if:

A. The equipment is used **improperly**.
B. The electrical installation or the regulator connected to the equipment are **defective**.
C. The equipment is exposed to **overloads**, short-circuits, electrical discharges, floods or other similar unforeseeable circumstances.
D. The equipment is **handled** or **repaired** by staff non authorised by EMA.

DECLARACIÓN DE CONFORMIDAD

DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITÉ
89/336/CEE
73/23/CEE

MARZO 2003
MARCH 2003
MARS 2003

Electroestética & Mobiliario

CE

***Nombre del Fabricante*:** **BIOINSIDE INVESTIGACIÓN Y TECNOLOGÍA, S.L.**
Manufacturer's name:
Nom du fabricant :

Dirección del Fabricante:
Manufacturer's address: **Sant Martí de l´Erm, 22**
Adresse du fabricant : **E 08970 – Sant Joan Despí**
BARCELONA - SPAIN

Declara que el producto: ***Electrocosmético***
Declares that the product: **Electrocosmetic**
Déclare que le produit : Electro-cosmétique

Nombre del producto: *COMPACT 500*
Name of the product:
Nom du produit :

Marca: *EMA*
Brand:
Marque :

Cumple con la normativa:
Complies with the norm:
Est conforme à la norme :

Seguridad Eléctrica: CLASS I TYPE BF
Electrical Security: UNE EN 60601
Sécurité électrique :

Compatibilidad Electromagnética:
Electromagnetic Compatibility:
Compatibilité électromagnétique :

EN 61000-3-2, EN 61000-3-3, EN 50081-1, EN 55011, EN-5002-1, EN 61000-4-2, EN 61000-4-2, EN 61000-4-3 + ENV 50204, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11.

Signed: Pilar Sánchez

MANUFACTURER'S NOTE:

Our wish to offer to the aesthetic sector equipments that keep adapting to the requirements of this young profession leads us to conceive new equipments and to try and improve those already existing. For this reason we are compelled to reserve the right to modify these specifications without prior notice.

All equipments are intended for a mains voltage of 230 V. If you require it for a voltage of 125 V, please inform your supplier at the time of order.

The inappropriate use – not included in this instruction manual – from the beauty professional can have undesirable results. The manufacturer is not responsible for the results derived from an improper use of the machine.

SUGGESTIONS:

Your opinion is important to us. You can send your comments and suggestions to get a better service day after day. You can write at the following address:

EMA

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REGISTRATION No: B60829793

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NOTES AND COMMENTS

EMA

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